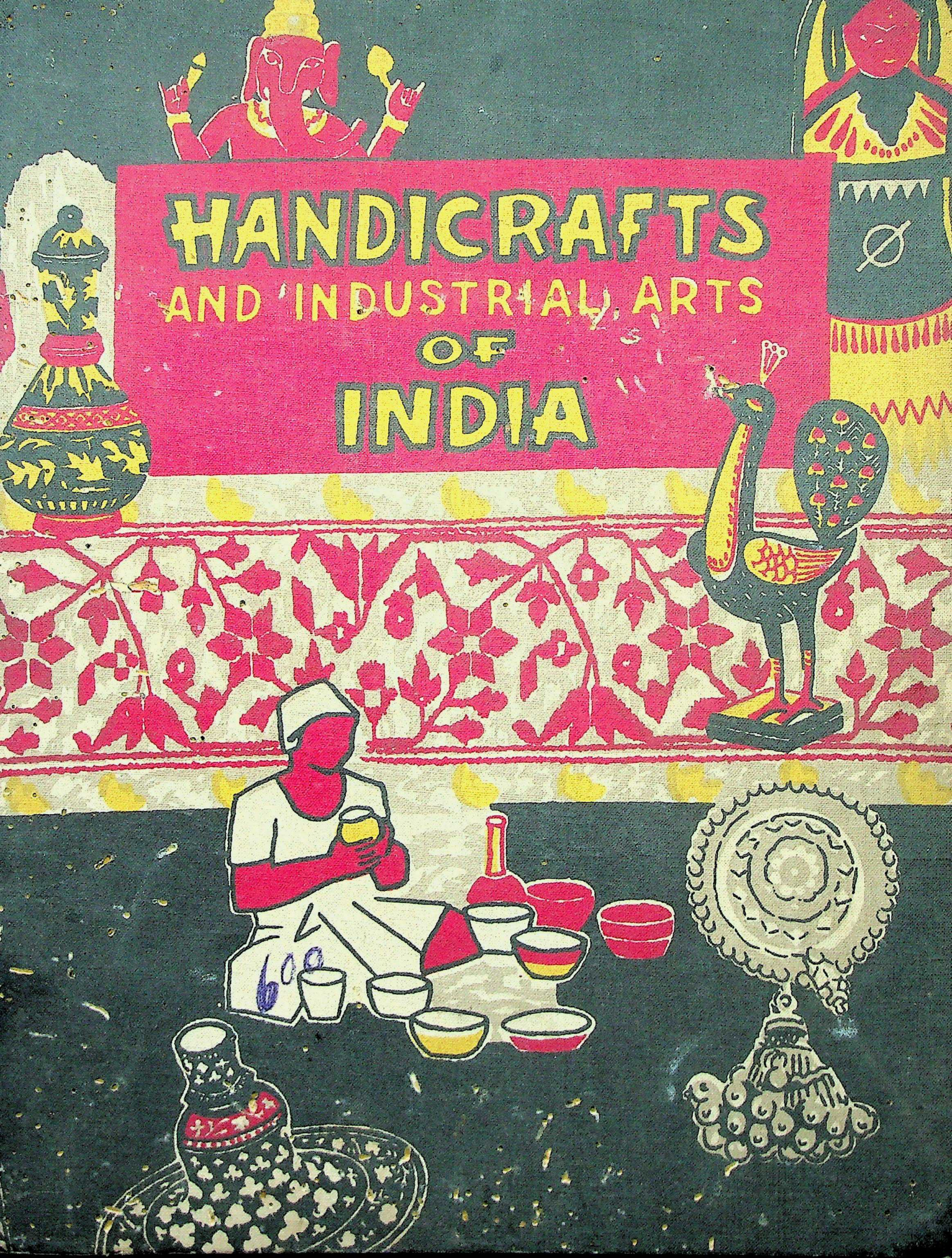
HANDICRAFTS AND INDUSTRIAL ARTS OF INDIA



THE HANDICRAFTS AND INDUSTRIAL ARTS OF INDIA

First Edition

Never before has such a profusely illustrated work, with such a detailed text, been published on India's Handicrafts and Industrial Arts, destined to be a standard work on the subject for many years to come. Its 154 large plates, in colour and monochrome, illustrate hundreds of handicraft objects and specimens of old industrial arts—many of them at present in the museums of the world, and others commonly available in the markets today. Pictorially speaking, here is a treasure house of the finest and most representative specimens extant.

An extraordinarily beautiful and comprehensive book, it unrolls before the reader in text and pictures, the whole rich pageant of Indian craftsmanship from early days to the present time. It is at once a thorough reference book, a history of the different crafts, and a handbook of techniques and methods. Although greater stress has been laid throughout on the traditional crafts and processes, the more modern though perhaps less artistic media of creative expression have not been neglected.

In considering the country's inheritance in the field of industrial arts, the author has mentioned the ancient lineage of each craft, considered its aesthetic qualities, described in brief the techniques and modes of work wherever necessary, and even indicated the differences obtaining in different parts of the country.

This book, being the most comprehensive and best illustrated, on the crafts of India will be of great interest to art connoisseurs, designers, commercial artists, businessmen interested in the import or export of the hundreds of superb Indian handicraft objects available today, curio dealers, curators of museums, librarians of cultural and educational institutions, teachers and amateur practitioners of handicrafts, and all those interested in Indian art, culture and history.

The aim of this book s not only to delight the eye and enrich the reader's aesthetic experience, but also to pay tribute to the many great but unknown craftsmen of India whose achievements, in the past and today, are so representative and symbolic of the artistic spirit of the Indian continent.

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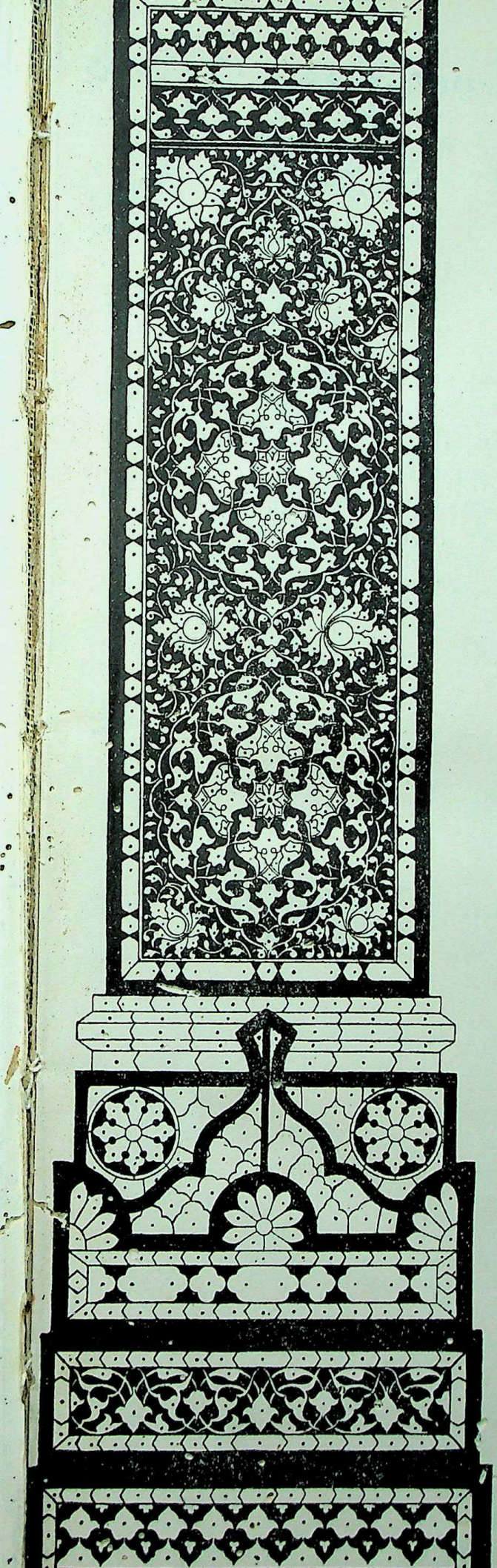

THE HANDICRAFTS AND INDUSTRIAL ARTS OF INDIA

A PICTORIAL AND DESCRIPTIVE SURVEY OF
INDIAN CRAFTSMANSHIP AS SEEN IN MASTERPIECES

of Jewellery and Metal Crafts, Arms and Armour, Furniture and Inlay Crafts, Stone and Ivory Carving, Lacquer Crafts and Lac-Turnery, Papier Mache and Gesso Work, Pottery and Glassware, Clay Figures and Folk Toys, Hand-woven Textiles and Embroidery, Dyeing and Calico Printing, the Bandhani and Patola, Carpets and Rugs, Leather Crafts and Shell Work, Baskets and Mats, Etc.

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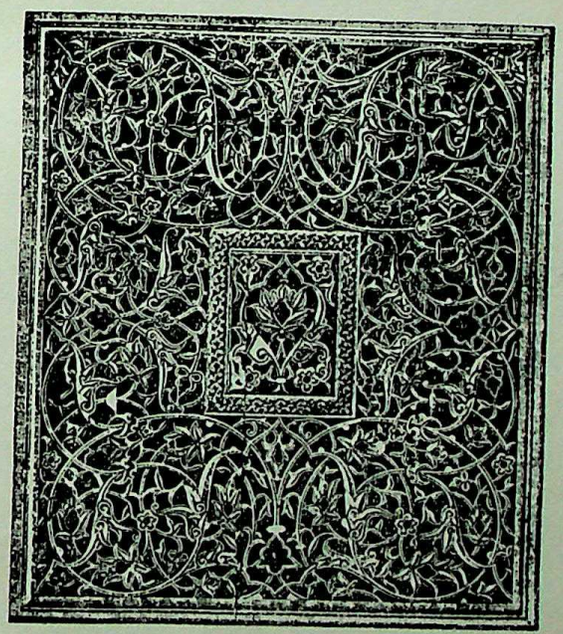
The Publishers will always be interested to receive suitable photographs of the handicrafts of the different States of India for reproduction in future editions of this work.



Perforated red sandstone screen panel from Fatehpur-Sikri

(The illustration on the title page is a detail of mother-of-pearl tessarae on the base of a column supporting the canopy over the cenotaph in Salim Chisti's tomb, Fatehpur-Sikri.)

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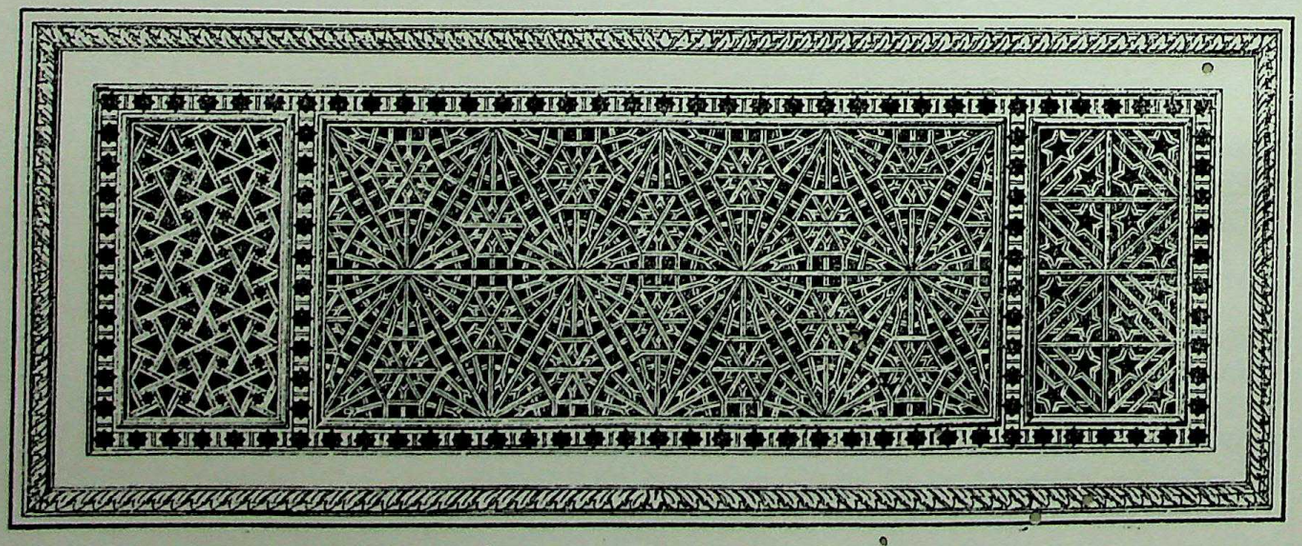

Geometrical Wooden *pinjra* work from the Punjab

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INTRODUCTION

On the birth of Prince Siddhartha who was to be the great Gautama the Buddha, King Suddhodana gives order that the capital city of Kapilavastu should rejoice at the glad occurrence.

"Thereafter the ways are swept,
Rose odours sprinkled in the streets, the trees
Were hung with lamps and flags, while merry crowds
Gaped on the sword players and posturers,
The jugglers, charmers, swingers, rope walkers,
The nautch girls in their spangled skirts and bells,
That chime light laughter round their restless feet;
The masquers wrapped in skins of bear and deer,
The tiger tamers, wrestlers, quail fighters,
Beaters of drum, and twanglers of the wire,
Who make the people happy by command.
Moreover from afar came merchantmen,
Bringing, on tidings of his birth, rich gifts,
In golden trays ; goat shawls, and nard and jade,
Turkises 'evening sky' tint, woven webs . . .
Homage from tribute cities."

Sir Edwin Arnold thus sings in *The Light of Asia,* the great poem based on the Buddhist *Tri-Pitaka* or "Three-Caskets" text. The reference to the rich gifts on golden trays, the shawls, nard and jade, the woven webs, presumably fine muslins, testifies to the antiquity of Indian handicrafts. And the art-crafts of India today are still the art-crafts of antiquity and therein lie their supreme charm and beauty. Besides, the Code of Manu established in village India a class of hereditary artisans and craftsmen, who even now, after hundreds of years, retain some of the technical skill and the artistic genius of their remote ancestors. As Shanti Swarup so aptly says, "Today, although greatly diminished in scope and possibly doomed to fade away, the ancient heritage in our handicrafts lives with the same picturesqueness as in the past, and our craftsmen can still find in the supreme ideal of Beauty their greatest creative force."

The craftsman of ancient India traced his descent from Vishvakarma, Lord of the Many Arts, Master of a Thousand Handicrafts, Carpenter to the Gods, the Architect of Their Celestial Mansions, the Designer of All Ornaments, the First of All Craftsmen. This mythological origin provides him with a proud religious background for his handiwork and a spiritual incentive to give of his very best. Chintomani Kar points out : "According to the Indian tradition an artist is only considered accomplished when his repertoire of art consists of works in ten different materials. These are wood, brick (terracotta), stone, lime (stucco), plaster, sugar, ivory, Yantra(?), and flat drawing and painting. This versatile technical skill of the Indian artist is unique and is visibly present in the neat and complete workmanship which is found even in decadent art."

The antiquity of handicrafts in India is no longer in question, spinning, weaving and dyeing of textiles perhaps being the oldest of them. It is now generally admitted that it was from India that were exported to ancient Egypt the very fine muslins used as shrouds of the Egyptian royal mummies. Silks also were exported to this land of the Nile, perhaps from Bengal, as seems evident from *Periplus of the Erythrean Sea.* Indications of cotton fabrics have been found at the site of the Mohenjo-Daro excavations and the finest muslins and silks are seen represented in the murals of the Ajanta and Bagh caves.

As to metal crafts, dolls, chisels and spearheads have been found at Mohenjo-Daro and Harappa and the other sites of the Indus Valley Civilization. The vessels made of copper and bronze found here show perfect craftsmanship, as if the art even in those very early days had been well developed and of still more ancient origin. In the *Rig Veda* we find a mention of gold cups and vessels encrusted with gems, and some of the precious ornaments found at Taxila are very much like the jewellery of Greece of the fourth century B.C. But then the influence of Greek thought and culture on the art of this region has never been questioned.

Pottery can also claim a very ancient lineage as is proved by the ceramic wares found at Mohenjo-Daro. The symmetry of their shapes, the fine designs and the kind of glazing found on them testify to their excellence. Moulded tiles of what appears to be blue glass have been found at Taxila, while specimens of glass of a light green cast have been excavated at Pataliputra and Mathura. The discovery of carved ivory specimens at the Indus Valley sites goes to indicate that even this art-craft was not unknown in India of nearly 4,000 years ago.

Handicrafts, especially of the ornamental kind, are generally considered to be articles of luxury and meant only for decorative purposes. But the rural craftsmen of India have always produced requisites of everyday utility for the simple masses of the vast countryside. K. de B. Codrington wisely observes : "Where the Western housewife must put up with jugs and basins of a few standard types, the villager's wife is accustomed to having a special pot to her hand for almost every special purpose, and the potter is willing and able to turn them out for her." Not only must the craftsman and artisan be an artist with a flair for fine handiwork and design, he must also understand the tastes and needs of the rural folk he has to sell his wares to. He must have the manual skill to be successful, the technical knowledge of old traditions, often be able to make his own tools and depend solely on the materials he can easily procure near by. Above all, he had and has to be an individualist, depending on his

own natural initiative, resourcefulness and inherited skill for his work.

No wonder then that as Dr. Forbes Watson says, "The Indian artizan is always careful to avoid a useless or wasteful ornamentation, and never allows himself to forget the purpose which the article he is adorning is designed to fulfil. But it is not in these respects alone that the excellency of the native workman is to be seen. He continually displays an admirable skill in the arrangement of form and colour — producing those beautiful and harmonious combinations which are to the eye what chords in music are to the ear. The subdued elegance which characterizes Indian decoration never fails to please. It marks a pure and refined taste, and whether it be the result of cultivation or of instinct it certainly exhibits a charming obedience to the great principles of art."

Even in colour lay a tradition.

As expressed so lucidly by Kamaladevi Chattopadhyaya, "This sensitivity to colour has expressed itself in most of the romantic folk poetry and ballads of this country. Colours were surcharged with emotional content and rich association. Red was the colour of the *Chunari,* the tie-dyed sari was the symbol of *sohag* or the state of the first days of marriage and love play. It was the garment worn by *Abhisarika** the young woman seeking in the darkness of night her waiting beloved. Saffron or *gerua* was the colour of the ochre earth and of the yogi who renounced that earth. Yellow was the colour of *Vasant* or spring, of young mango blossoms, of swarms of bees, of southern winds and the passionate cry of mating birds. Maroon and black were the colours of mourning. Blue or *Nil* the colour of indigo was also the colour of *Krishna,* the cowherd child god who bore the name of *Navjaldhar* — he that is of that colour, that is in the newly formed cloud, dormant with that darkness that is rain. Even the great gods had their individual colours. *Brahman* was read, *Shiva* was white and Vishnu was blue." (*Pushpanjali,* Vol. II, 1958.)

It is true that in later periods of history, craftsmen were commonly employed by rich patrons who engaged them on a fixed salary or on a piecemeal contractual basis. The great Mughal emperors, Akbar, Jahangir and Shah Jahan particularly, are known for their great patronage of the arts and crafts of India. They fully realised the fact which in the words of Sir George Birdwood, "In India everything is hand wrought and everything, down to the cheapest tools or earthen vessel, is therefore more or less a work of art."

The village communities of craftsmen have always been the centres of the traditional crafts of India. The caste system imposed by the Code of Manu preserved the ancient traditions and prevented, or at least kept in check, the degrading influence of foreign thought. This community of interests would naturally lead to the formation of trade unions, especially on the immigration of the craftsmen to near-by towns and cities. In the *Ramayana* we read of the inhabitants of the city of Ayodhya going out in a procession to seek Rama, in the order of their trade guilds — jewellers, potters, ivory-workers, perfumers, goldsmiths, weavers, carpenters, braziers, painters, makers of musical instruments, armourers, curriers, blacksmiths, coppersmiths, makers of idols, inlayers, glassmakers, and others. Membership of the guild must have been hereditary, every boy of a certain caste entering his father's guild ; but unlike the practice in the West, there was no fixed period of apprenticeship, the son learning his craft from his father from a very early age.

Sir George Birdwood tells us : "In districts where there are a considerable number of craftsmen, but all of one caste, the head of the caste acts also as chief of the guild. It is under this system that the sumptuary arts of India, as distinguished from its village arts, were fostered and sustained, until at length the whole bullion of the Western nations of antiquity and mediaeval times was poured into the East in exchange for them. It is impossible to overestimate their effect on the art manufactures of Europe and by a natural reaction it is in its sumptuary productions that the effects of the influence of foreign commerce and foreign conquest on India are most explicitly and instructively shewn."

As early as A.D. 1655, in his *Voyage to the East Indies,* Terry wrote about India : "The natives there shew very much ingenuity in their curious manufactures, as in their silk stuffs, which they most artificially weave, some of them very neatly mingled either with silver or gold, or both ; as also in making excellent quilts of their stained cloth, or of fresh-colored taffeta lined with their pintadoes (chintz or prints ?—R.J.M.), or of their satin lined with taffeta, betwixt which they put cotton wool, and work them together with silk. . . They make likewise excellent carpets of their cotton wool, in mingled colors, some of them three yards broad and of a great length. Some other richer carpets they make all of silk, so artificially mixed as that they lively represent those flowers and figures made in them. The ground of some others of their very rich carpets in silver or gold, about which are such silken flowers and figures most excellently and orderly disposed throughout the whole work. Their skill is likewise exquisite in making of cabinets, boxes, trunks, and standishes, curiously wrought within and without ; inlaid with elephants' teeth or mother-of-pearl, ebony, tortoise-shell, or wire. They make excellent cups and other things of agate or carnelian, and curious they are in cutting of all manner of stones, diamonds as well as others. They paint staves or bedsteads, chests or boxes, fruit dishes or large chargers extremely neat, which, when they be not inlaid as before, they cover the wood, first being handsomely turned, with a thick gum, then put their paint on most artificially made of

*One of the *Nayikas* or Heroines identified in Rajput and Pahari Schools of painting as a love-sick young woman going out at night to meet her lover.—R.J.M.

liquid silver or gold or other lively colors which they use, and after make it much more beautiful with a very clear varnish put upon it . . ."

If the industrial arts and handicrafts of India reached a state of almost near perfection, the very fact that they have survived so long all the vicissitudes to which they must have been subjected, was no doubt greatly due to the encouragement afforded by the powerful and even petty princes and rulers, and the aesthetic inclinations of the common people. Abul Fazl, Emperor Akbar's famous minister, tells in his *Ain-i-Akbari* that the Mughal emperors maintained skilled workmen in their palaces. Akbar himself was keenly interested in painting and employed a staff of artists so that they "might vie with each other in fame, and become eminent by their production." Once a week, he inspected their creations and rewarded them with bonuses and premiums according to their worth. Due to the interest of the Mughal rulers of Delhi, even new art-manufactures were established in the capital city. Abul Fazl also writes of Akbar's personal superintendence in the making of weapons for his armoury and his particular liking for woollen cloths, especially shawls. Here, in his palace, were inlayers of gold, silver, crystal and carnelian, jewellers working in precious metals and beautiful gems, artists in damascene work, "inlayers with little grains of gold," makers of braids in gold and silver for sword-belts, engravers of all kinds, sculptors in stone, lapidaries, and painters of the famous Mughal miniatures.

"In the case of handicrafts, an additional reason for their preservation and development lies in the fact that they are the material symbols of India's unique cultural ethos," writes Mrs. Kamaladevi Chattopadhyaya. "Unlike the products of the mindless machines which are more or less alike the world over, the products of Indian craftsmanship would always be inimitably Indian . . .

"In India the handicrafts have an importance all their own. They express the great tradition and cultural heritage of our country. It is obvious that in the old days beauty and utility were never divorced as in the present age. Every article turned out was the creative expression of its maker and brought him the exaltation of fulfilment. No matter how common its use, how humble the surroundings, the article in use had to be beautiful. Our pots and pans, our mats and blankets, were works of art, not merely of use. Over thousands of years, these multitude of processes, shapes, and colours were evolved into perfection." (*The March of India,* IX, 4.)

Sir George Birdwood has said, "There is no mistaking the voice of joy, which is the distinctive note of all the best Indian Art." And as long as the masses of India retain their taste for superb workmanship, as long as they continue to appreciate the value of skilled craftsmanship, as long as they continue to delight in the really beautiful, so long will the art-crafts of India survive and for ever flourish.

INDIAN METAL SCULPTURE

The discovery of the small bronze statuette of a dancing girl at the ancient site of Mohenjo-Daro has conclusively proved the antiquity of Indian metal sculpture. Although cast probably some time in later centuries of the third millennium B.C. it shows so much of artistry and craftsmanship that it seems that the knowledge of metal casting must have actually originated much previous to this age, though we have no record of any such art prior to the Indus Valley Civilization.

Although the Mohenjo-Daro doll is made of an alloy like bronze, many other metals were probably in use in ancient times. Dr. Ananda Coomaraswamy says : "Not only was iron worked at an early date (being mentioned with gold, silver, lead and tin in *Yajur Veda*), but there existed (and perhaps originated) in India a very early knowledge of the art of preparing steel ; the steel of India was known to the Greeks and Persians, and very probably to the Egyptians, as was also the material of the famous blades of Damascus."

Actually, pure copper was more in common use than bronze. Silver and gold were certainly also utilised. It is said that round about A.D. 360, during the reign of the great Emperor, Samudra Gupta, a statue of the Lord Buddha was cast in gold and silver and studded with precious stones. Vincent Smith also reports a similar fact from the time of King Harsha of Kanauj of the 7th century A.D. In a big monastery on the banks of the Ganges stood a statue of the Buddha, made of gold and as large as the king himself.

Apart from the metal objects of art found at the ancient sites of Mohenjo-Daro and Harappa, the oldest examples of metal sculpture date from the dynasty of the Imperial Guptas — the mighty kings who ruled Northern India or Hindusthan, objects showing skill in execution and great artistic merit. The few pieces extant from the pre-Gupta age rather lack the essential qualities of all true art. It was also in the Gupta period that the standardised gestures and poses of religious statuary as we know them today became codified on priestly order.

At last, the dynasty of the Guptas declined into chaos and confusion till at the beginning of the 7th century A.D. arose the great Harsha of Kanauj who quickly restored peace and order, patronising Buddhism like his predecessors, Asoka the Great and Kanishka of the Kushan dynasty. A poet and dramatist himself, he patronized artists and men of letters and so was naturally immortalised by Bana in his poetic romance, *Harshacharita.* He quickly carved out for himself a mighty empire across Northern India, to which unfortunately he left no heir.

King Harsha encouraged the art of metal statuary and casting and during his reign many large metal figures were certainly cast for the temples and palaces of his kingdom.

Writing of his visit to India during the reign of this enlightened ruler, the famous Chinese traveller Yuan Chwang* mentions that in spite of losses due to accidents and robbery, he was able to bring back with him about a hundred and fifty particles of Lord Buddha's bodily relics as well as many statues of him in gold, silver, and sandal-wood.

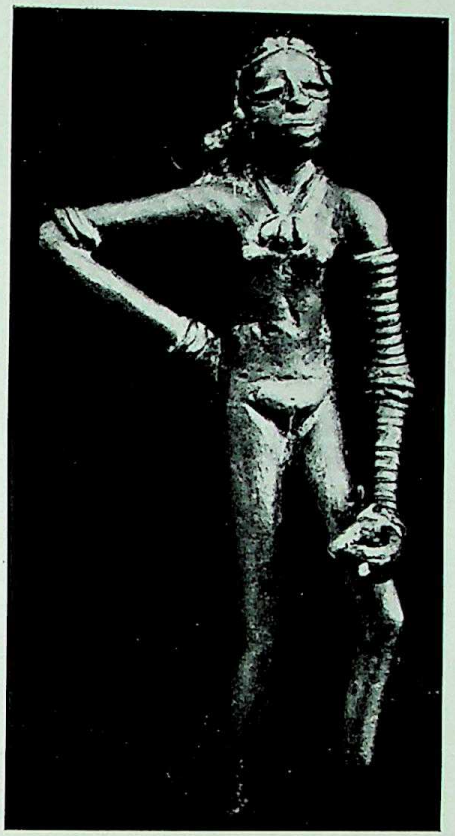
Again there came a period of warfare and chaos. The powerful rulers fought among themselves. Each when at the height of his powers must have adorned his palaces and temples, but no metal sculptures from this uncertain period have come down to us. The little that is known of them makes it certain that by then the art of metal statuary had deteriorated vastly. The human quality of the Gupta period, truly the Golden Age of Indian Art, had vanished, to give place to florid ornamentation in keeping with the highly ornate architecture of the period.

By the end of the 10th century A.D., the Islamic invaders entering Hindusthan from the north-western boundary, gave the death blow to the tottering Hindu kingdoms. This also put an end to the art of metal sculpture for by the end of the 12th century the Muslim conquerors had consolidated their power throughout the northern regions.

Fortunately, the iconoclastic Islamic armies did not penetrate every nook and corner of the country and in such isolated areas like Nepal and Tibet, the ancient art continued to exist if not actually to flourish, greatly influenced by the highly distinctive style of the Pala artists of Bihar and Bengal. During the reign of the famous kings, Dharmapala and Devapala, who reigned for over a century during c. 780-892 A.D., the art of metal sculpture rose to great heights, as did also literature and all other forms of artistic expression. Under the patronage of the Pala rulers, a distinctive and superior style developed which, as stated above, greatly influenced the art of Nepal and Tibet during the period of Islamic invasions and the wanton destruction inflicted by the conquerors on the artistic and religious heritage and traditions of the country.

The art and craft of Indian metal statuary also existed and flourished in the vast plateau of the Deccan, lying between the Narbadda and Tungabhadra rivers. It is now almost certain that Indian metal sculpture developed in the Deccan more or less at the same time as in the north, though we have no existing records of any objects or statuary from before the 9th century A.D.

* Hiuen Tsang.



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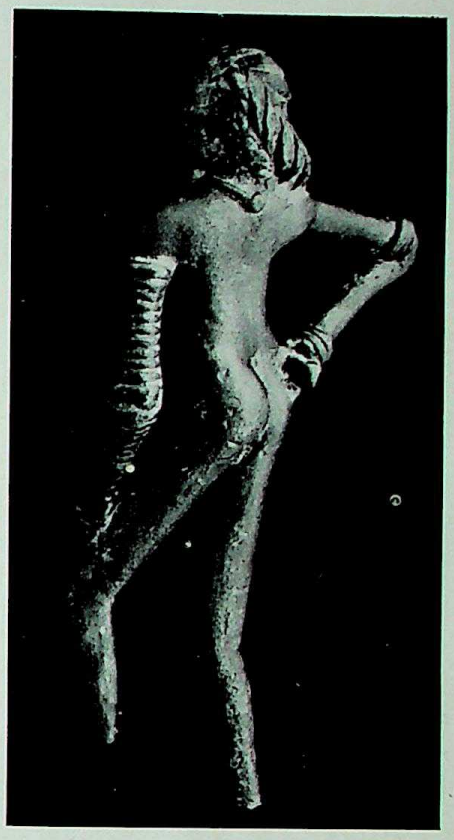

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1, 2. Front and back views of a copper statuette of a dancer from Mohenjo-Daro. 3. Painted jar from Harappa. 4. Front and back views of a limestone male torso from Harappa. 5. Bearded priest in limestone, from Mohenjo-Daro. Attributable to *circa* third millennium B.C.

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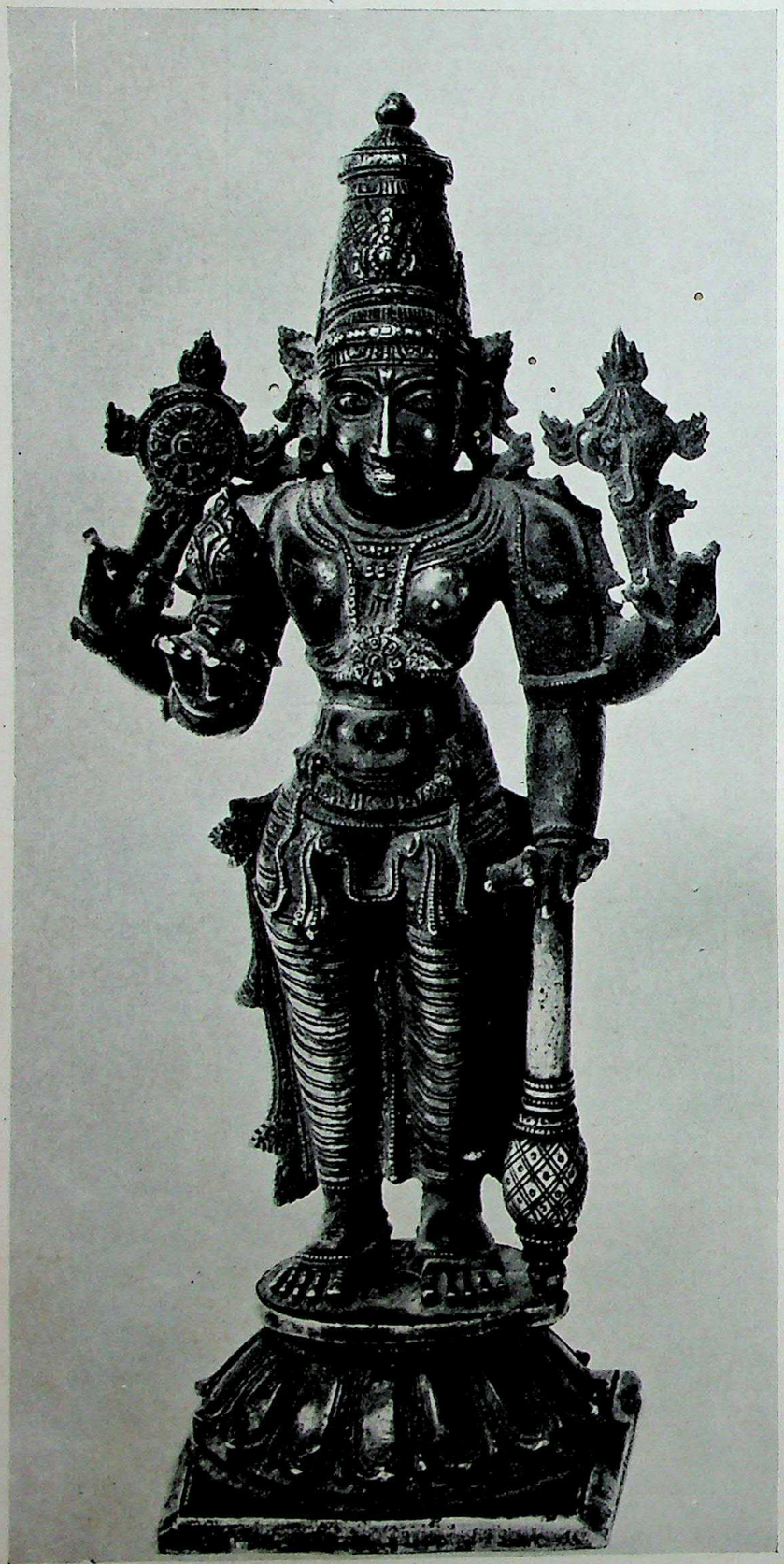
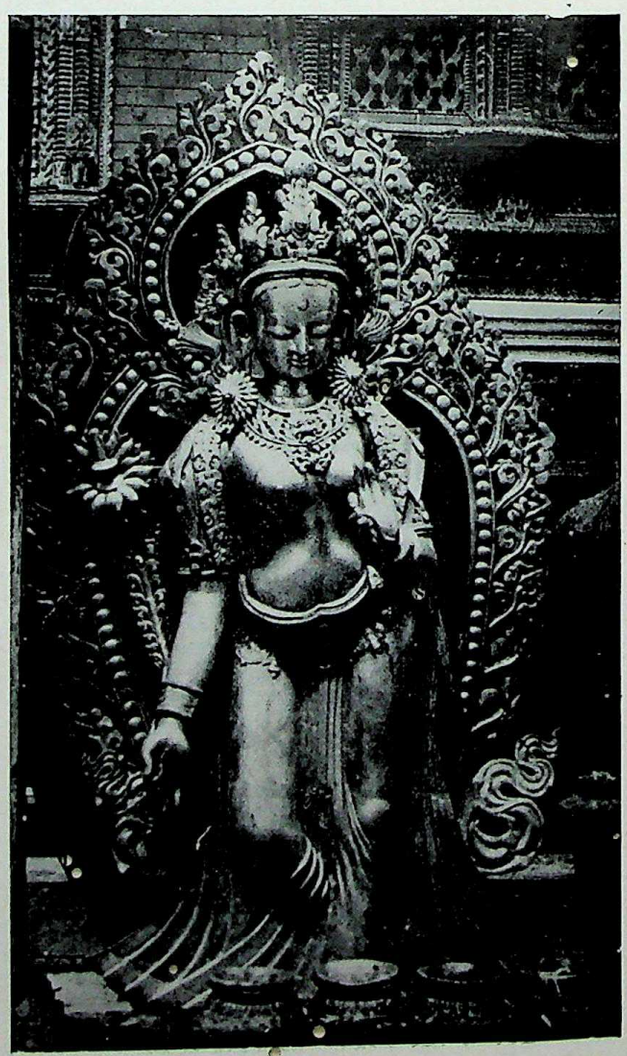


Vishnu : Bronze, North Indian, 15th Century.
(By Courtesy of State Hermitage, U.S.S.R.)

White Tara. A brass figure from Swayambunath Temple, Nepal.
(Photo : Tibor Sekelj)



The Imperial dynasty of the Andhras ruled over the Deccan from the 3rd century B.C. to the 3rd century A.D. Unfortunately, we have no knowledge of metal sculpture of this age, though sculptures in stone of this period still exist. Then came the Chalukyas and the Rashtrakutas who built magnificent temples excelling in their sculptural decorations. But as in the north, the history of metal sculpture in the Deccan came to an end with the invasion of the Islamic armies that overran the country and reduced it to rack and ruin sometime in the 14th century.

As far as metal sculpture is concerned, the most important phase of it developed and flourished in the south, down from the Tungabhadra river to the extreme tip of India, terminating in Cape Comorin. The art saw its greatest development in the 9th century with the rise of the Cholas of the Vijayalaya line. Here is noticed a very high degree of artistic skill allied to technical craftsmanship, of an order so high that it could have only been the product of many generations of knowledge, experience and practice.

The Chola kings, Rajaraja-deva and his son Rajendra Chola-Deva I, ruling from A.D. 985 to 1035, built huge palaces and very large temples, with superb sculptures in stone. Unfortunately, as everywhere else in the country, the Cholas were always in conflict with the equally powerful Chalukyas of the Deccan. Perhaps the largest number of metal figures and statues were cast in the reign of Kulotunga Chola, heir to the Chola and Chalukya alliance, who in A.D. 1074 became the supreme overlord of the Chola empire.

As the Cholas were worshippers of the great god Siva and his consort Parvati, the finest examples of metal statuary of this period naturally represent these divinities in their various aspects. Chintamoni Kar writes : "They have been universally acclaimed as the flower of the artistic genius of South India." But a sad decline set in with the fall of the Chola power sometime in the 13th century ; and by the next century, the Islamic armies had entered the Deccan from the north, founding a Muslim state. It was at this uncertain time that five Hindu brothers founded the kingdom of Vijayanagar, which in spite of continuous conflicts with the neighbouring Muslim chieftains, continued to flourish and exhibit a splendour of its own, reaching its zenith of artistic development in the reign of Krishna Deva Raya. A famous specimen in copper repoussé work shows this great king and his two consorts standing side by side. This excellent piece of work reveals a very high degree of artistic skill, having been made of beaten metal and not cast in the usual way as explained later in this chapter.

However, the end of the mighty Vijayanagar empire was in sight. In A.D. 1565, a powerful army of the adjoining Muslim states sacked the capital city. "Nothing seemed to escape them. They broke up the pavilion standing on the huge platform from which the kings used to watch festivals and overthrew all carved work. They lit huge fires in the magnificently decorated buildings forming the temple of Vitthalaswami near the river and smashed its exquisite stone sculptures . . . Never perhaps in the history of the world has such havoc been wrought, wrought so suddenly, on so splendid a city ; teeming with a wealthy and industrious population in the full plenitude of prosperity . . ." (A. Sewell, A *Forgotten Empire.*)

Thus perished the glory of Vijayanagar, the last of the great Hindu kingdoms. Then also perished the country's great art of sculpture, and step by step the creative genius of its artists slowly frittered away, lacking the necessary stimuli and the patronizing hand of mighty rulers. True, the art of metal sculpture continued into the post-Vijayanagar period, but little can be said about it to its credit. The skill of old and creative genius was dead, never to come to life again.

Most of the ancient metal figures that have come down to us seem to have been made of pure copper or brass. Bronze was rarely if ever used, probably due to scarcity of tin. Maybe this diffidence to use bronze was the result of the Hindu belief that it was an impure alloy for divine purposes. Often, many different metals were mixed to form the necessary alloy for casting the figures. Thus, in the south, the ideal alloy was considered to be the "Pancha Lauha" or the "Five Irons"; actually, it consisted of gold, silver, copper, brass, and lead. However, in the north, the "Astadhatu" was more popular, an alloy of gold, silver, tin, lead, iron, mercury, zinc, and copper.

The technique of casting was, and is even to-day, the *cire perdue* or "lost wax" process. Briefly, this consists in making the original model in wax — the modelling being delicate but simplified, yet expressing all the grace of the human figure. The wax model is then covered with a coat or coats of a special clay mixture, leaving openings at the top and bottom. The molten metal is then poured in through the top hole, which melting the original wax model, takes its place, the contained air and the excess of the metal and the now melted wax, escaping from the lower opening. The clay coat is next broken apart and the cast figure removed, to be further chased and embellished with hand tools — this often unfortunately obliterating the artistic impulse of the original modeller in wax.

The *cire perdue* process is described in many ancient religious manuscripts. A detailed description appears in the old guide to image-making, *Manasara,* and this has been fairly literally translated by Sarasi Kumar Saraswati in the *Journal of the Indian Society of Oriental Art,* 1936. The description is very interesting and deserves to be quoted in full :

> According to the navatala measurement as mentioned before, the expert should first prepare the image (i.e., the mould), complete with all the limbs, yellowish in colour, beautiful to look at and with weapons and arms as prescribed.
>
> After placing the wax tubes of the length of a "dhatura" flower on the back, on the shoulders

and on the neck or the crown (of the image), (the artist) should besmear the image with refined clay.

To clay should be added charred husk finely rubbed, cotton severed a hundred times and a little salt finely powdered. All these (when mixed with clay) should be (finely) ground on a smooth stone and (the paste) should be applied three times all over and round (the image).

The first layer (of clay) should be transparent (and thin) and should be dried up in shade. After a couple of days a second layer should again (be applied). When dry again, there should be the third coating thickly applied.

(One) should besmear the whole (image or model) with clay leaving the mouths of the tubes open ; and the wise man should dry up (the clay coating) with care and judgment.

The expert should first (i.e., before beginning the process, just mentioned) measure the wax of the image, which has to be made either in brass, or copper, or silver or gold.

Brass and copper should be taken ten times that of wax, silver twelve times and gold sixteen.

(Then one) should encase the metal, either gold or one that is desired, with clay and coconut-shaped crucible (thus formed) should be dried up in the aforesaid manner.

Next (one) should melt away the wax (from the mould) by heating the (i.e., the mould) in fire and should afterwards heat the crucible in cinders.

Brass and copper melt surely with (the help of) cinders just kindled. Silver melts with (the help of) glowing cinders, while gold with (the help of) cinders flaming fivefold.

After making a hole with an iron on the top of the crucible and holding it tightly with a pair of tongs (one) should bring the heated crucible (out of the cinders).

(One) should place a burning wick in the mouth of the tube of the heated (mould of the) image.

After bending carefully the crucible, held tightly by the tongs, (one) should pour molten metal into the mouth of the tube in a continuous stream and stop when it is full to the brim of the tube.

The adjacent fire should be put out for the purpose of cooling (the mould with the molten metal). When the image (i.e., the mould) gets naturally cool the expert should break up the clay (mould) very carefully.

Then the metal image (thus prepared) verily resembles that in wax, endowed with similar limbs and other details.

When there is seen anything superfluous that should be put right with "charana"; the tubes should also be cut away and after that (the image) would have to be finished.*

The chief disadvantage of the "lost wax" process is that only one piece can be obtained at a time, and duplicates are not possible. In spite of these disadvantages, the *cire perdue* process of casting is still practised in Nepal and some parts of South India.

The characteristics and poses of the figures, especially the divine representations, were laid down in the ancient treatises on image-making and had to be strictly followed by the craftsmen, who were thus debarred from expressing their own creative genius. Most of them were written during the Gupta age and a little later, and the practices and codes specified in them continued to be obeyed and followed in the centuries that followed.

Yet considering the artistic masterpieces created by the metal craftsmen of old, it is clear that they could not always have strictly followed the canons laid down in the *Silpa-sastras* or other similar texts. Perhaps the restrictions were not binding on the really great as is evident from Sukracharya's *Silpa-sastra Sukraniti* :

"These Lakshami are not for thee ; these laws that I lay down, these analyses of what an image should be, are for those images that are made to order for the people who would worship them. Endless are thy forms ! No Shastra can define them ! Nothing can appraise thee."†

The Art-treatises or *Silpa-sastras* allowed the figures to be dynamic or static in pose, either standing, sitting, or reclining. The postures are of four general types and may be roughly described as follows :

Samapada or *Samabhanga :* This is a symmetrical pose, the left and right sides of the figure being equal and in balance. In brief, the body is perpendicular to the base, whether the figure be standing or sitting.

Abhanga : This is more or less like the above as far the lower part of the body is concerned, but the upper half is inclined slightly either to the left or the right.

Tribhanga : This pose shows a peculiar twist. The lower limbs and the body from the hips downwards are inclined to the right, while the upper part and the shoulders are turned to the left, the neck and the head again being twisted to the right. Or the whole arrangement may be shown as a mirror image of this.

Atibhanga : This pose is somewhat like *tribhanga,* but much more emphasised. The upper part of the body from the hips upwards is made to sweep to the right or the left, backwards or forwards. The legs may be stretched backwards or forwards or sideways in a dynamic

* Quoted by Chintamoni Kar, *Indian Metal Sculpture.*
† Mulk Raj Anand, *The Hindu View of Art.*

expression, or may just be bent in the same directions.

The gestures of the hands as shown in the figures are symbolic and were codified by the ancient writers on image-making. An examination of many metal figures will reveal the following *Mudras* or *Hastas* as most common. They were evidently prescribed by the *Silpa-sastras* and strictly enjoined on the image-makers.

Abhaya Mudra : The hand gesture of Assurance. The palm which is open is held outwards, with extended fingers pointing upwards.

Anjali Hasta : The gesture of Reverence. This is similar to hands held in prayer, with the palms of the two hands facing and touching each other.

Dhyana or *Yoga Mudra :* The gesture of Meditation. One hand rests on the other and both are laid in the lap of the figure sitting in *Padmasana.*

Dharmachakra Mudra : The gesture signifying the Buddha's "Wheel of the Law" — the first preaching of the Lord. Both the hands are held before the chest, the right in the *Vyakhyana Mudra* and the other with the palm held pointing inwards.

Kataka Hasta or *Simhà Karna :* The gesture signifying the holding of flowers or certain Attributes. The hands are partly closed, with the index and middle fingers almost touching the thumb.

Kartari Mukha Hasta : The third finger and the thumb are bent, while the other fingers are separated and shown outstretched.

Suchi Hasta : This is rather similar to *Kataka Hasta,* but the index finger is shown raised as if implying a threat.

Varda (or *Vara*) *Mudra :* The gesture signifying Charity. The fingers are shown pointing downwards, with the palm held outwards and open.

Vyakhyana Mudra : The gesture signifying "Exposition." The hands are shown more or less as in *Abhaya Mudra,* but with the thumb and forefinger touching each other.

Many of the metal figures are shown in sitting poses and these too were rigidly prescribed by the ancient texts. Dr. Ananda Coomaraswamy has described them thus :

"The principal seated poses are the *Padmasana* (also known as *Paryankasana*), typically seen in the seated Buddha, where the legs are crossed and each foot rests on the opposite thigh ; in *Virasana,* the pose is similar, but the right foot lies under instead of upon the left thigh ; the *Yogasana,* the legs being similarly crossed, the knees slightly raised and supported by a narrow band called *Yoga-Patta ; Sukhasana, Lalitasana, Lalitaksepa* or *Lilaksepa,* a position of ease or comfort, where one leg remains bent, the other is pendent ; *Sopasryasana,* when the raised knees are supported by a *Yoga-patta ; Maharaja-lilasana,* 'position of royal pleasure,' where one knee remains bent in the same way, but the other is raised and supports the corresponding arm, the hand hanging over the knee, the body leaning slightly backward and supported by the other arm. Figures seated in the European manner (*Pralamabapada asana*) are less usual, except in the case of *Maitreya Bodhisattva ;* even for Buddhas this type is comparatively rare, and it is not found in Brahmanical art."*

The rare *Pralamabapada asana* can be seen in the Buddha figures in the caves of Aurangabad, and at Ajanta, as for example, in viharas XVI and XVII.

The ancient *Sukraniti* text prescribes three different types of images corresponding to the three ultimate realities : *sattva* (truth), *rajas* (passion), and *tamas* (gloom). Thus the *sattvik* image is that of a god seated in a yogic posture, with the hands granting boons to his worshippers ; if shown seated on a *vahana* or vehicle and bedecked with ornaments, granting boons, and holding offensive weapons, it is a *rajasic* image ; the *tamasik* image is always shown as a terrible fighting figure, fully armed and destroying the demons.

Another classification is much simpler : *nara,* man-god ; *krura,* terrible ; *asura,* demonic ; *bala,* infantile ; and *kumara,* juvenile.

Apart from the codified characteristics, poses and *mudras,* many other rules and regulations were laid down in the *Silpa-sastras* and much good advice also given. For example, the *Manasara* instructs the image-maker to mould his figure in wax of a yellow colour, so that it being more or less the colour of the metal used for casting, he would be helped in the modelling of the figure, the yellow colour of the wax giving a better impression of the highlights and shadows as they would finally appear in the cast metal figure than white wax would do.

The figures of gods and goddesses and other divine personages were always given a conventionalised body form, though the same restriction did not apply to semi-religious figures like nymphs, Gandharvas, Apsaras, or animal forms. With them the artist was allowed a greater amount of creative freedom. Exact measurements for religious figures are laid down in the ancient texts. The unit measure is the *tala* — "a quarter of the width of the artist's own fist is called an *angula* or finger's width. Twelve such finger widths is the measure of a *tala.*" (A. N. Tagore, *Some Notes on Indian Artistic Anatomy.*)† The texts prescribed ten *talas* as the measure for gods in their gentler and pacific aspects ; but when shown in their heroic moods, this was increased to twelve *talas ;* in their demonic and most ferocious aspects, the measure for height was increased to as much as fourteen *talas.* As Chintamoni

* Quoted by Chintamoni Kar.

†The *angula* is further divided into eight *yaba* (grains of barley corn), a *yaba* into eight *likhyas,* one *likhya* into eight *romagaras,* one *romagara* (hair) into eight *renus* (rays of the sun) and one *renu* into eight *anus,* the smallest unit.

Kar says, "The devices of dwarfing and enlarging the size and volume of figures were used in Indian sculpture to denote the greater and lesser, or the more powerful and the less powerful, heroes, gods, and demons." In conformity with this, goddesses measured only nine *talas* in height, and a child, six *talas*. Of course, there were many exceptions to these rules and the measurements often differed in the different parts of the country, according to which ancient text the craftsmen obeyed.

It must be remembered that as John Crossley says, "True Indian metal sculpture does not depict the flesh and form of living beings, but rather their attributes and emotions." And he continues :

"Thus that magnificent achievement the Dancing Siva is not as much the actual figure of a dancing god, but rather the joy and sense of victory such as a god would experience during his cosmic dance. In the same way an image of Buddha does not depict a yogi meditating but rather eternal bliss and perfect equilibrium, and in order to appreciate this type of art one must first understand the religious and philosophic ideas behind it." (*Statesman,* 1955).

It has already been stated that no important or striking metal sculptures of the pre-Gupta period are known to us, and so the earliest style that we could possibly discuss is that of the Guptas (A.D. 320-490). The representations of the divinities, male and female, of the period show a certain elegance that is very characteristic. The bodies are slim and graceful and shown clothed in very diaphanous apparel, tightly clinging to the body and revealing all the contours of the figure. The hair is rendered very conventionally and appears almost like a wig, especially in the case of male figures. A rather peculiar characteristic seen in many of the Gupta sculptures is the blocking up of the spaces between the fingers to make them webbed Here we have no representations in diabolical aspects, but a kindly aura — probably of Buddhistic influence — seems to pervade the figures, almost always depicted as compassionate and benign. Following the laws laid down in the ancient texts, many of the divine Brahmanical divinities are shown with extra heads or arms, but in spite of this anomaly from nature they do not lose their human and mortal appeal. It has been correctly pointed out that the grace, freshness and vitality of these sculptures have rarely been surpassed anywhere else in the country or in any other age.

During the dominance of the Pala dynasty of Bengal and Bihar round about A.D. 750-1200, another style of metal sculpture evolved and flourished. Once again we have a revival of Buddhist influence much admixtured with Brahmanical iconography. But in spite of deviations, the Gupta style seems to have continued to influence the Pala school of art. The images of the period are still slim and graceful, but the attire, already so scanty in the previous style, became even more diaphanous. The body from the waist upwards was nearly always shown bare, except for elaborate jewellery and conventionalised decorations. Unfortunately, the graceful poses of the Gupta style degenerated into highly conventionalised and stiff formal attitudes. The humanity of the Gupta sculptures also seems to have disappeared and the faces have now become sharp with almost aquiline noses, strongly defined lips and eyebrows, and half-closed eyes. Another change to be seen is the casting of figures in groups, shown standing on a single base. The two great artists of the period were Dhiman and his son Bitpalo who lived and worked in the reign of Devapala (9th century) and left behind them a definite style of their own. The Pala sculptural art greatly influenced that of Tibet and Nepal in the Himalayan ranges, and even the art of Orissa further south.

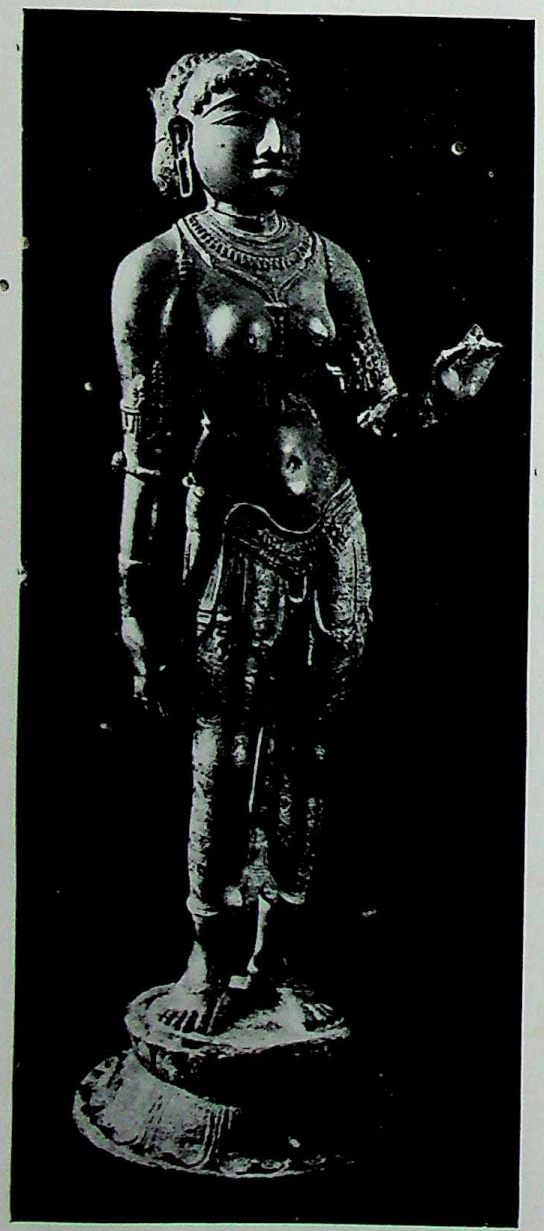
During the Gupta regime, the art of metal sculpture reached the tiny mountain kingdom of Nepal, nestling among the Himalayan peaks, and so well known today for her sturdy Gurkha fighters. This is certain from the fact that the earliest specimens of Nepalese sculpture are in the tradition of the Gupta style. Unaffected by the Islamic invasions, the art continued to flourish in this isolated region and continues to exist even today to a limited extent. Although a few pieces in cast bronze are known, the majority of the sculptures are of beaten copper or cast in brass. A unique feature of this school is the practice of gilding the base metal and the encrusting of the figures with rubies, lapis lazuli, turquoises, and other semi-precious stones.

The Nepalese style can best be described in the words of the great scholar, Dr. Ananda Coomaraswamy :

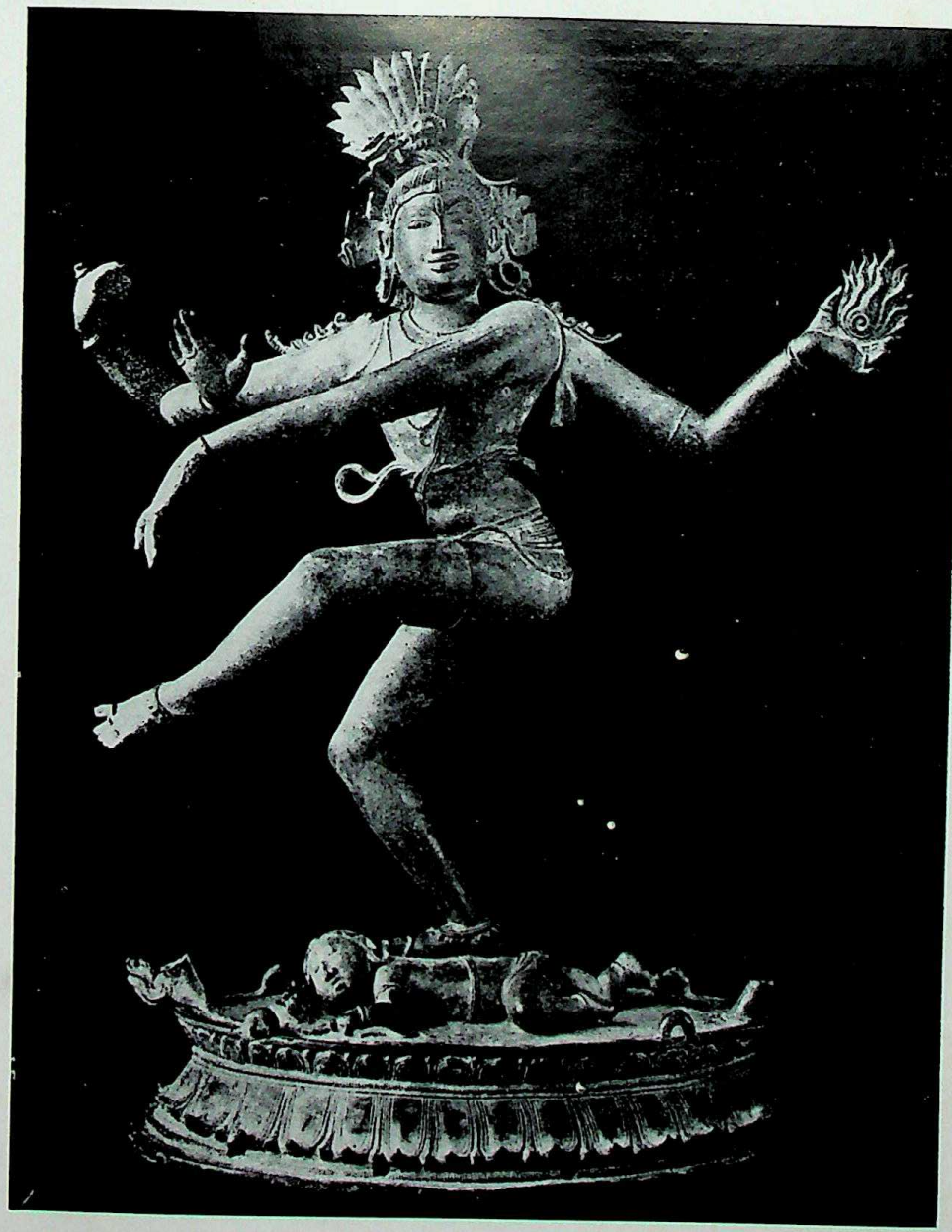
"In the older Nepalese figures the Indian character is altogether predominant, and there is no suggestion whatever of anything Mongolian : they recall the work of the Gupta period," and they are greatly related to the works of the Pala school of Dhiman and Bitpalo. The figures have a characteristic rounded modelling of the body with rather florid features. The bridge of the nose is prominently rounded and the lips are full and thick. "On the other hand, those of a later date, and up to modern times, are no longer so robust and fleshy, but svelte and slender-waisted and more sharply contoured : the nose becomes aquiline, sometimes even hooked, the lips clear-cut and thin, and the expression almost arch." In short, the later figures show a greater attention to detail, a refinement of form, and more florid ornamentation. "To sum up these distinctions the art of the earlier figures is plastic and sculpturesque, while that of the latter has more the character of drawing and suggests the hand of the goldsmith rather than a modeller." (*Rupam*, Vol. 2).

The Indian influence on Nepalese metal art has been further emphasised by Percy Brown :

'On stylistic ground it seems fairly clear that this Nepalese school of metalwork formed part of that famous Hindu-Buddhist school of art that flourished in the country of Magadha (now Bihar), in the ninth and tenth centuries A.D., under the patronage of the famous dynasty of the Palas. Art has no frontiers,

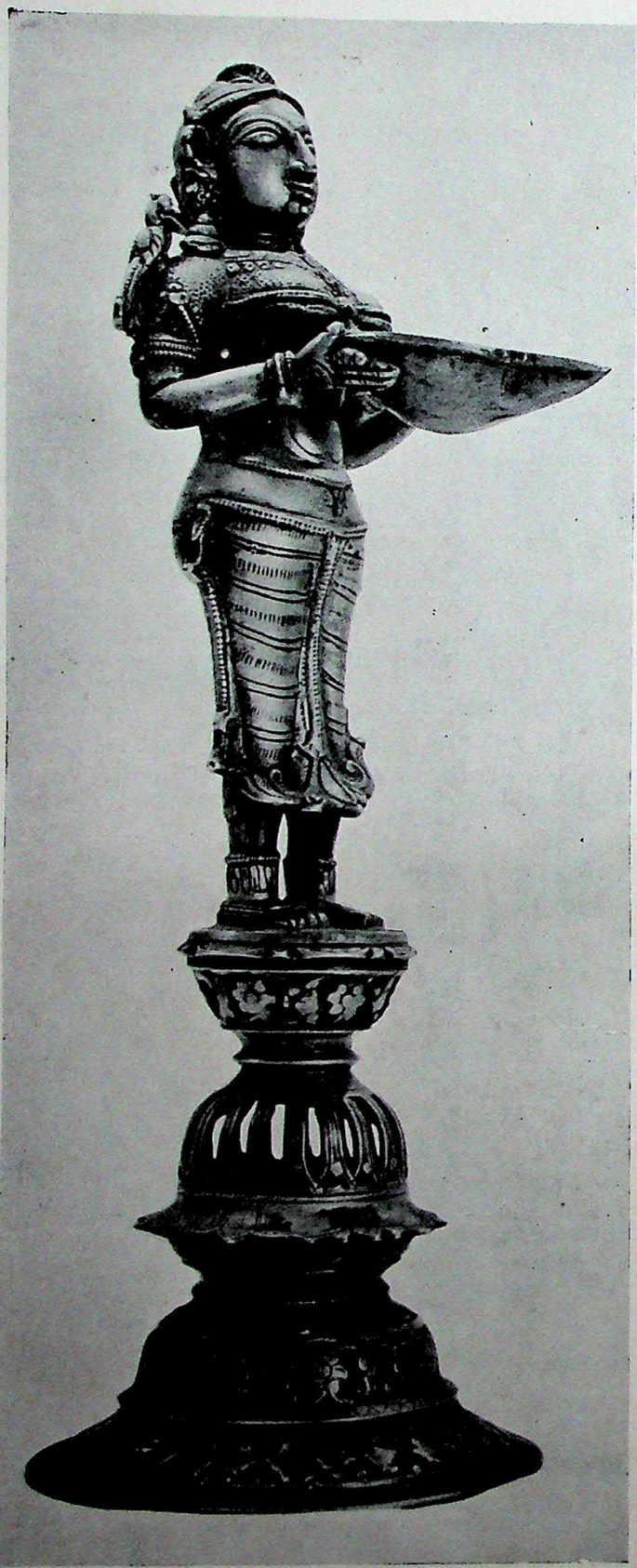


Chola Queen, from Chingleput district, South India. Bronze, 13th Cent. A.D.



Siva Nataraja from Tiruvelangadu, Chitur district, South India. Bronze, C. 1100 A.D.

(*Copyright reserved by the Department of Archaeology, Government of India*)



A fine example of South Indian "lamp-bearer". The tray in the figure's hands carries the oil and wick.

(Photo : A. S. Vaswani)

Top : Bronze Ganesh from Thirukkarugavur temple, Tanjore Dist. *Bottom :* Bronze Siva-Parvati. Art Gallery, Tanjore.

(Photos : E. S. Mahalingam)

and the pupils of those famous exponents of the Magadhan or Middle Country School, whose names the historian Tara Nath has recorded, Diman and his son Bitpalo of Varendra, probably carried the art into Nepal. Under a new environment, the productions of these Bihar artists lost some of their Indian character, which was replaced by that from China. One can see this change taking effect by comparing some of the metal figures from the Varendra foundries, such as that fine copper statue of the Buddha from Sultanganj, now in the Birmingham Art Gallery, with those ornamenting the shrines of Nepal . . . The nearly life-size figure from the Temple of Shambhu-Nath is typical of this school as it flourished in Nepal. As this beautiful statue of a Tara shows, the workshops of Bihar and Nepal had their Cellinis and Ghibertis, whose productions were almost contemporary with these great Florentine artists, but, alas, as with most of the Indian painters and sculptors, neither their names nor any record of their personalities have been preserved." (*Indian Art and Letters,* XII, 1, 1938.)

A typical creation of the Nepal school is Tara, the supposed offspring of Avalokitesvara, the Bodhisattva of Mercy, from the tears he shed for the misery of the world. Elaborate *deevas* or ornamental lamps for sacrificial and religious usage are also commonly made.

From Nepal, the art of metal sculpture apparently travelled to Tibet, high up in the mountains, isolated from the world for ages by the mighty Himalayas, today almost what it was perhaps centuries ago. Here we have a mixed style, the Indian tradition subtly influenced by Chinese ideals. However, it must not be forgotten that the Buddhist images of China were themselves influenced by the style of the Gupta school and even the Graeco-Indian Gandhara school of the North-West. After all, many Indian artists lived and worked in China and they must have taken with them the ideals of their native land. The image-makers' art of Tibet thus shows a hybrid Gandharan-Chinese-Indian influence, which is very peculiar to the region. This is especially to be noticed in the sculpturing of the drapery which is Indian in style, while the Mongolian cast of the features proclaims the Chinese influence on the sculptor's art.

SOUTH INDIAN BRONZES

So important is the place that South Indian bronzes — supreme examples of the metal sculptor's genius — hold in the history of Indian art, that they certainly deserve a chapter to themselves. As O.C. Gangoly has so aptly remarked, "In the absorbing serenity of expression, in the rhythmic sways and dynamic symmetry of the poses, above all in the moving and generalised forms of an original yet artistic anatomy, the bronzes of this school tránslate the abstruse conceptions of Brahamanic philosophy, into which the artists have skilfully mingled their own meditations, their prayers and all the hope of their lives. To know them and to appreciate them is to receive an invitation into a new world of plastic dreams."

Just as the Gupta and the Gandhara plastic representations in copper and bronze at first imitated the Buddhist stone figures of an earlier period, so did the earliest metal sculpture in South India closely resemble the style of stone carving of the region. And in spite of the greater dynamic and fluid possibilities of the metal art, the early examples still show the rigidity and static qualities imposed on the sculptor in stone by the unyielding properties of the material he worked with. The figures of the early period were like stone reliefs and lacked the freedom and the full rotundity of the later periods.

Indian metal sculpture in this southernmost part of the country emphasises the last, though the finest, chapter in the art of Dravidian India. As far as we know, the Dravidians professed the Hindu faith strictly, and especially the worship of Siva — at once the great Creator and the Destroyer. The ascendency of the Saivite faith can be traced to the eighth century A.D. when bands of holy men, proselytes of Brahamanical Hinduism, wandered through the country preaching their faith and singing the praises of the Lord Siva. So successful was their mission that as years went by all traces of Buddhist and Jain influence waned more and more, to completely die out by about A.D. 1000.

The South Indian images of the past were mostly made of bronze with a large copper content and were cast by the *cire perdue* or "lost wax" process. As in other parts of the country and in previous ages, these icons followed the canons of measurement and proportion laid down in ancient times in the *Silpa-sastras*, and the height of the image depended on the status of the deity represented and the aspect he was shown in. A static frontal pose in balanced equilibrium was generally favoured for the gods in their aspects of spiritual serenity, while more varied and twisted postures were employed when the moods personified cosmic functions and dynamic aspects. The *mudras*, the symbolical language of hand gestures dealt with in the previous chapter, was followed in the south as in other parts of the country. The image-makers also strictly adhered to the appropriate representation of jewellery, ornamentation and head-dresses as laid down by the writers of old, canons from which the artist dared not deviate.

The largest output of the South Indian school of the 11th century and later comprises images of Siva and his consort Parvati, as well as of Saivite saints, the most popular being Sundaramurtiswami, who was claimed by Siva as a disciple on the former's wedding day. One of the best known of the images of this saint is, as Benjamin Rowland points out, very representative of "the peculiar combination of all these traditional elements sub-ordinated to a kind of elegant attenuation and litheness," characteristic of all the best South Indian images. By traditional elements, Benjamin Rowland is referring to the "moving line of the silhouette," "the exquisite gestures of the hands, that impart such a feeling of tremulous movement to the form," the "exaggerations of features and proportions, such as the lotiform eyes and leonine torso."

The representations of Saivite saints exhibit a rare quality of exaltation and devotion, the ecstatic rapture of a devoted disciple for his divine master, seemingly vibrating in harmony with the communicating aura emanating from the divinity. It must not however be believed that the images of the saints were "portraits" in any sense of the word, and though the figures differ in their poses and other characteristics, they all represent an idealised union of attributes, personifications of the quality of supreme devotion.

Of course, the most important and dramatically conceived of all the divine images of the South Indian school are representations of Nataraja — Siva as the Lord of the Dance — either in the playful or the destructive aspect. Siva is the Divine Dancer, visualised in terms of motion and vibration, who in 108 varied movements interprets the mathematical Law of the Universe.

Dr. Ananda Coomaraswamy interprets Siva's cosmic dance in metaphysical terms : "In the Night of Brahma, Nature is inert, and cannot dance till Shiva wills it : He rises from his stillness, and, dancing, sends through matter pulsing waves of awakening sound, proceeding from the drum : then Nature also dances, appearing about him as a glory. Then in the fulness of time, still dancing, He destroys all Names and Forms by Fire, and there is new rest. Thus Time and the Timeless are reconciled by the conception of phase alternations extending over vast areas of space and great tracts of time. The orderly dance of the spheres, the perpetual movement of atoms, evolution and involution, are conceptions that have at all times recur-

red to men's minds ; but to represent them in the visible form of Nataraja's Dance is a unique and magnificent achievement of the Indians."

Siva's dance, the Nadanta, is to the Dravidian mind a personification of the cosmic forces of nature, the pulsation of electronic energy within the universe. In the Nadanta dance, Siva personifies the kinetic aspect of his divinity, the elemental force through the power of which the whole universe is created, sustained and ultimately destroyed. As Havell says, the image of Siva as Dhyani-Buddha is only the static centre round which the forces of the cosmos revolve, as the electrons whirl round the static nucleus of the atom. He is the Supreme Intelligence, the Divine Spirit, dancing the dance of Karma. "They never see rebirths who behold this mystic Dance."

In the words of Dr. Coomaraswamy, "The Indian Nataraja may well be claimed as the clearest, most logical, and impassioned statement of the conception of life as an eternal Becoming." The Nadanta typifies the universe in the action of creation and destruction. "This is his dance in the last night of the world when the stars fall from their courses and all is reduced to ashes, to be ever rekindled, ever renewed by the boundless power of the Lord . . . The dionysian frenzy of his whirling dance presents affirmation of the eternal, unseen spectacle of the dynamic disintegration and renewal, birth and death, of all cosmic matter in every second as in every kalpa of time . . ." (Benjamin Rowland.)

This mystic and metaphysical conception of Divine Ecstasy could not naturally be grasped by the ordinary mind and for them a popular mythological explanation was evolved. Once, Siva disguised as a simple ascetic, wandered into a hermitage deep in a dark forest, where his enemies, the heretical Rishis had assembled. He confuted all their arguments and in revenge they tried to destroy him by the use of black magic. At first, they created a fierce tiger that sprang up on Lord Siva from the sacrificial fire. Siva stripped off the tiger's skin with his nails and wrapped it round his loins. Next, the Rishis created a venomous serpent. Only, Siva calmly took hold of it in his bare hands and placing it round his neck, began to dance. But the Rishis were not yet done. An ugly dwarf demon evolved out of the sacrificial fire, only to be crushed under Siva's feet, its back broken. And all the time, the triumphant whirlwind of the dance continued, as the assembled Rishis and Devas watched in awe and fear.

The Tandavan is another of Siva's dances in his *tamasik* aspect as Bhairava. This frenzied dance is symbolic of the God's cosmic function of creation and destruction of the world at the beginning and end of every *kalpa* of time.

Perhaps the finest representation of the dancing Siva is the bronze statue in the Madras Museum, belonging to the Chola Period. The symbolism and the *mudras* of this superb Siva representation has been explained by Havell on the basis of the existing Sanskrit ritualistic texts. The *damaru,* or drum shaped like an hour-glass, held in the upper right hand "beats the cosmic rhythm-sound representing the primary creative force and the intervals of the beat of the time-process." The left hand holds the flame denoting the holy sacrificial fire. The other left hand is stretched across the body and points to the uplifted foot — "the refuge of salvation." The lower right arm is raised high, round which a cobra is seen coiled, assuring all devotees of divine protection. "The *torana,* or arch of flame surrounding the image, is the Hall of the Universe in which Siva is dancing."

A characteristic feature of the Siva bronze of the Madras Museum is the wavy locks of hair, spread out like an aureole round the Divine Yogi's head. Maybe the waves are symbolical of the sacred rivers that descend over Siva's head at Kailasa. This spreading out of the matted locks of hair is not to be seen in any other similar representation, and it "could only occur in a whirling dance like that of the modern dancing dervishes whose object is the same as that of the Yogi, to excite in the dancer a condition of psychic clairvoyance."

Under Siva's right foot is Muyalaka, "the dark cloud of materialism in the Eternal Ether (*Akasa*), which disappears in the sunshine of the Divine spirit." As Havell further points out, "the appropriate dance for Siva in his Vedic aspect as Rudra, the storm-god, would be the dance of the whirlwind, as shown in the Nataraja image."

Another superb Nataraja figure, perhaps one of the finest, is that preserved in the Museum at Colombo. It is definitely of Hindu craftsmanship though found in one of the temples of Polonnaruwa in Ceylon, perhaps having been taken there from the art-workshops of Tanjore. Surprisingly, it does not show the violence and frenzy of the cosmic dance. Here is cadenced movement, slow and graceful rhythm, a perfect fusion of balance, equanimity and serene repose. Yet the image embodies all the visual power of a figure in motion, probably due to, as Benjamin Rowland says, "the arrangement of the multiple arms, one behind another, and the torsion of the figure, emphasized by the directions of the limbs."

Havell also mentions the magnificent bronze Nataraja that still stands in the great temple at Tanjore. Here is energy personified, all the passion and force of the whirlwind dance. Encircled in a halo of flames, the Lord of the Dance vanquishes the demon of Illusion, represented by a snake, the left leg swinging to the rhythm of the dance. One of the hands points to the feet, to the destruction of Illusion and Ignorance, the other hands holding the symbolic drum beating out the Cosmic beat of sound, and the symbol of the divine fire. As Dr. Coomaraswamy observes, "the Nataraja is one of the great creations of Indian art, a perfect visual image of Becoming, and adequate complement and contrast to the Buddha type of pure Being. The movement of the dancing figure is so admirably balanced that while it fills all space, it seems

nevertheless to be at rest, in the sense that a spinning top or a gyrostat is at rest."

The Tanjore image is one of the largest Nataraja figures known, being nearly four feet in height excluding the pedestal and the *torana*. As Havell has pointed out, "There is a marked difference of movement and expression in different images : it is quite easy to distinguish the creative artist from the common craftsman who works only by rule." This, in spite of the fact that the temple image-makers were compelled to obey the laws of proportion and gestures as laid down in the *Silpa-sastras*. But even these could not quite suppress the individuality and genius of the greatest of the artists. "There are many examples of the Nataraja, good, bad, and indifferent, in the temples of Southern India and in public and private collections. Some of the temple craftsmen of the present day show no mean artistry when they are called upon to represent the Lord of the Dance, though modern images cannot compare with the great masterpieces of Chola times." (Havell.)

Representations of Parvati, the consort of Siva in his benign aspect, are also common among South Indian bronzes. Perhaps the finest is the one in the Freer Gallery in Washington, dating to the 11th or 12th century A.D. This was definitely a processional image, as many of the early bronzes were, that is, images made to be taken out during religious processions. The figure is attenuated in form, being nine *talas* in height but the body is animated with dynamic feeling suggestive of the tree-goddesses of Sanchi, sculptured in stone. The extreme elongation of the figure gives it a feeling of grace and aristocracy. The breasts, which are round and smooth, correspond to the traditional description of "golden urns." And they are further accentuated by a cord that is shown as stretched between the narrow area between them.

Among the South Indian bronzes are also to be found representations of Kali, the frightful aspect of Parvati — the goddess of evil and destruction, epidemics and death — for ever claiming the blood of war or sacrifice. These figures are mostly shown as emaciated and holding the cymbals that clash in harsh cadence to the Dance of Death. Writing about the famous bronze Kali, originally from Tanjore, and now in the Nelson Gallery at Kansas City, U.S.A., Benjamin Rowland says :

"The rendering of the emaciated figure has nothing to do with the realistic definition of wasted anatomy . . . the very abstraction of the tubular limbs and the exaggerated attenuation of the torso, especially in the great distance between pelvis and thorax, not only emphasize the nature of the famine-racked body, but imparts a certain grandeur to the seated figure by thus increasing its height and bestowing a regal bearing on this most frightful of Indian goddesses."

So far we have dealt with idealised personifications of gods and goddesses, saints and disciples, modelled not to resemble any one living being, but a sort of synthesis of attributes. But, figures, perhaps more or less exact likenesses, of important men and women of those early days were also made. These "portrait" metal sculptures were fairly common and may have been derived from the practice of creating such "portraits" in stone in temples and caves.

Perhaps the earliest likenesses in stone in South India were those found in the ruins of the stupa of Amaravati. One is a mutilated figure, presumably of a devotee; the other is a group, the central figure of which is an all probability a petty king, Agheya-Vachakita-Vira. But, perhaps, the earliest of such "portrait" studies in India, and certainly the most authentic, is the one in a cave in Nanaghat, between Poona and Nasik. On the wall at the back of the cave are badly damaged figures carved in low relief, above each of which a name has been inscribed. The names indicate that the figures represent a king and a queen, the former's father, three princes, and a feudal follower.

Coming down to medieval times and the rise of the Cholas about the middle of the 9th century A.D., specimens of actual delineations in metal become more frequent. To name a few important examples, the bronze female statue found in the Siva temple of Konerirajapuram (10th century) definitely appears to be a "likeness" and is probably that of Sembiyan-ma-devi, the queen who founded the temple. In the Brihadiswara temple at Tanjore stands a statue bearing a label that this is the image of Rajarajendra-sola-raja, probably the Chola King Rajaraja I. He is shown standing with hands joined in an attitude of worship. Though poor in craftsmanship, here is a definite attempt at capturing a portrait likeness.

Among the metal figures in the Kesava temple at Belur, there is a fine one of Vishnuvardhana, the famous king who was converted to Vaishnavism by Ramanuja, and who later became known for the magnificent temples he ordered to be built. The statue is only about a foot and a half in height and stands on a pedestal. The hair is shown bound in a knot behind the head, a typical Vaishnavite custom of early times. Ear-rings, a necklace and other ornaments adorn the figure.

A change in methods and techniques becomes discernible from the 15th century onwards. One of the most important sculptural pieces in copper is the one of the famous Vijayanagar king, Krishna-deva-raya (A.D. 1509-1539), with his queens, Chinna-devi and Tirumala-devi, on either side of him. These figures seem to have been placed in the Srinivasa-Perumal temple at Tirumalai by the king himself in devotion to the deity he worshipped. The identity of these figures is beyond any doubt because of the incised lettering on the shoulders of the figures. These are beautifully made in copper repoussé work, well-proportioned and perfect both as to craftsmanship and artistry. The statues are in two hollow sections, front and rear, and joined together with rivets to give the appearance of solid figures. That of King Krishna-deva-raya is nearly four feet high, though those of the two queens are

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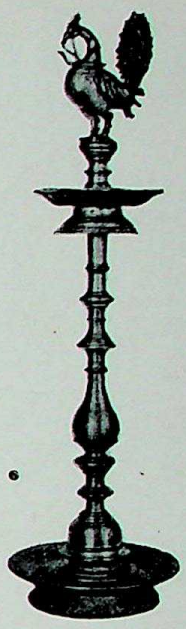

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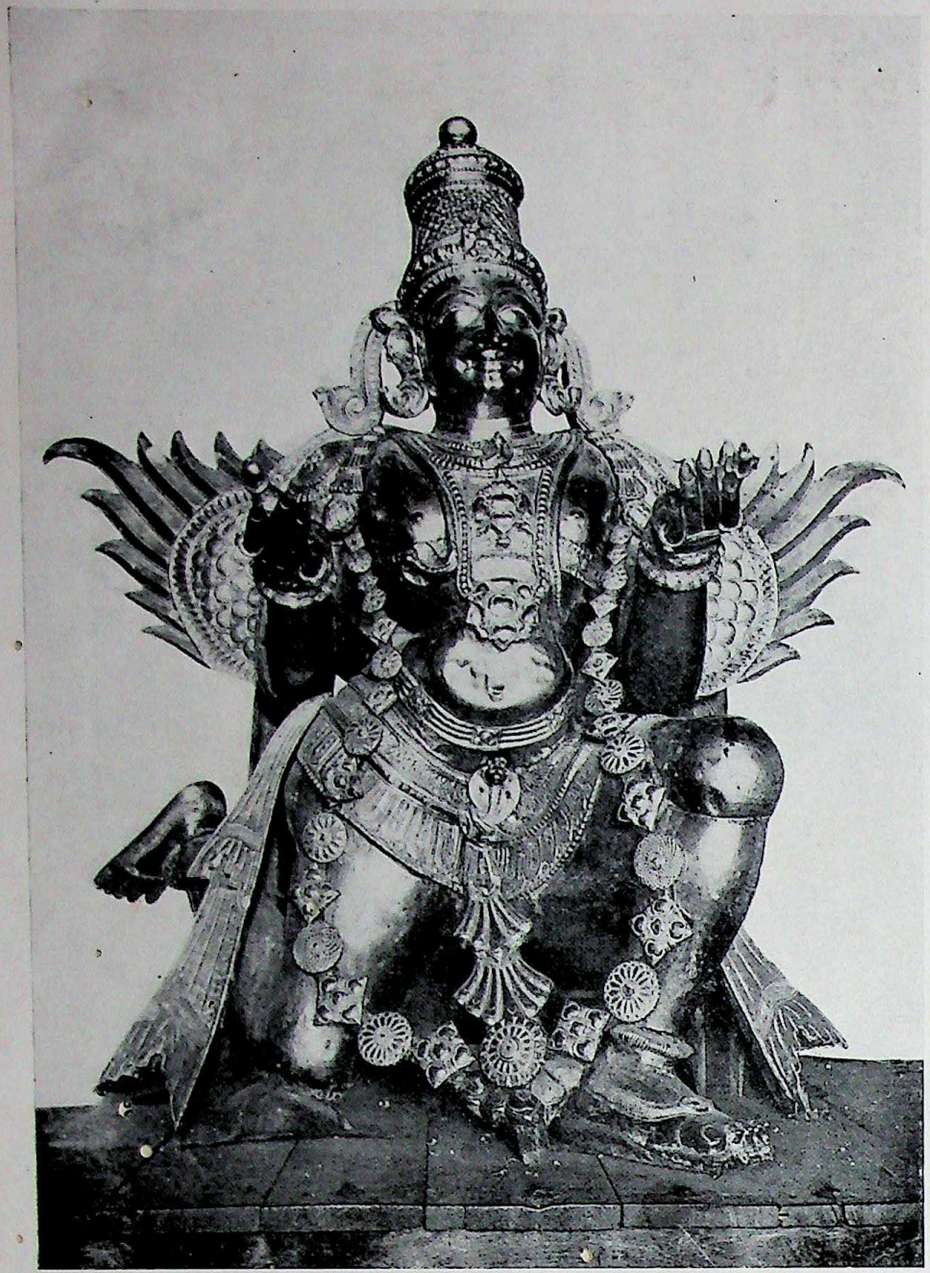
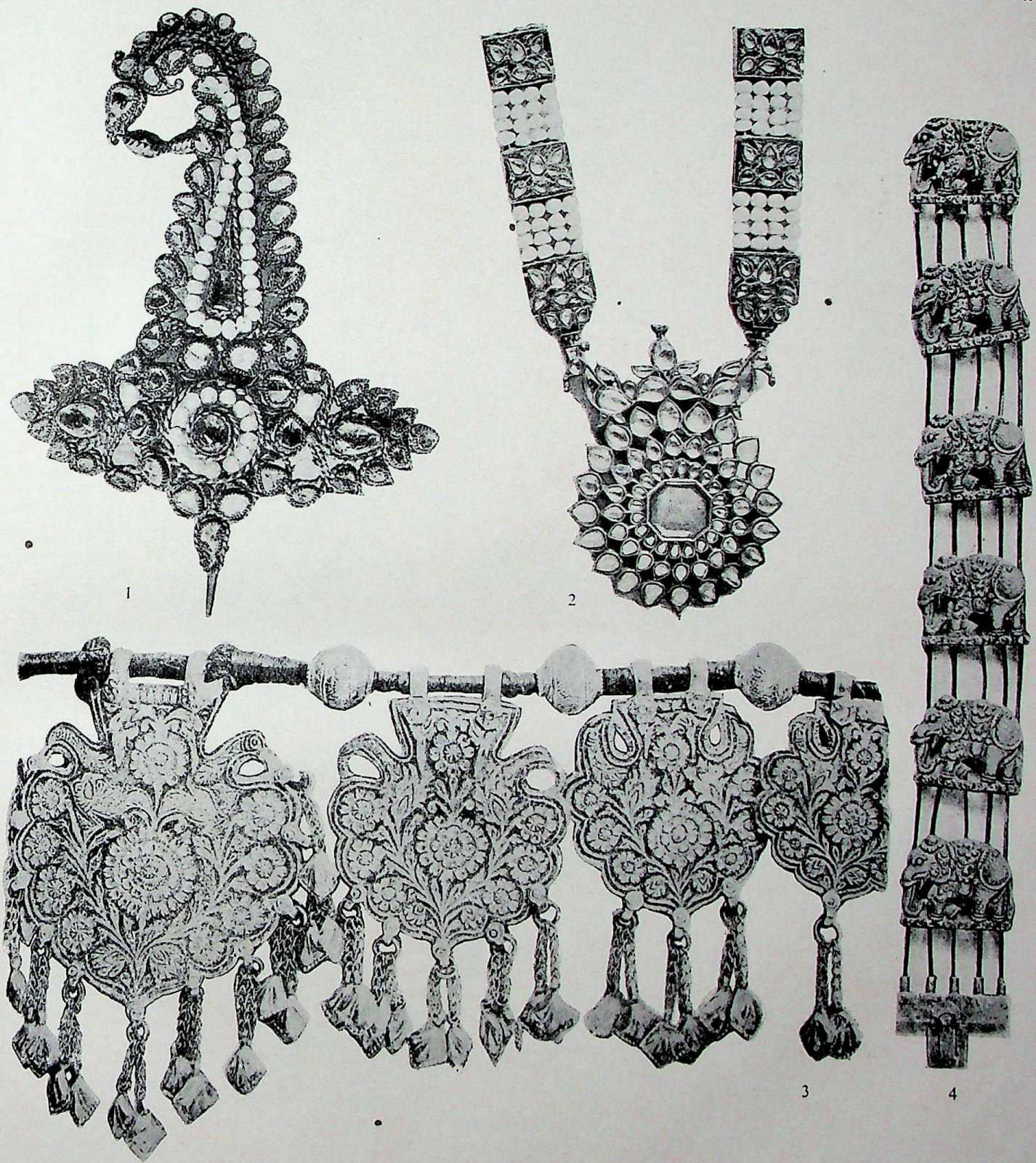
South Indian votive lamps, censers, and *dipa-Lakshmis*. 1. Brass lamp or incense-burner, 16″ high ; the conception is Vaishnavite ; the right hand holds the cup for the incense or the wick. 2. The conventional *hamsa* lamp. 3. Peacock lamp in brass ; the peacock is the vehicle of Kartikeya, the god of war, or Subrahmanya as he is known in the South. 4. Bronze *dipa-lakshmi*, 12½″ high ; "in the wide hips, small waist and accentuated breasts, and in the almost uncouth face, there is a conventional treatment which lends a peculiar charm and quaintness to the figure." 5. Brass, 13″ high, less conventional in design than No. 4. 6. Brass, 12″ high; rather crude in technical execution but with simple and graceful modelling ; probably an early form.

(From *The Journal of Indian Art and Industry*)



For use in temples, the image-makers of South India also make images out of sheet metal. The component parts are first made individually and later "assembled" and joined over a metal skeleton. *Left* : This is an image of Garuda, a mythical half-bird half-man, and the vehicle of Vishnu. *Right* : A striking image in sheet metal of a horse.

(*Photo : R. Lakshmi*)



Indian jewellery, probably 19th Century. 1. Turban ornament or *Sarpesh* with a cone-shaped top and two side pieces, set with rubies, pearls, and diamonds in a gold cable pattern setting, with two pendant emeralds, from Uttar Pradesh. 2. Necklace of square plaques set with diamonds and united by four short rows of irregular pearls, and a star-like pendant of diamonds and rubies. 3. A silver necklace from Hazara, consisting of seven large plaques chased with a floral design and enamelled, with pendants attached by means of red silk cord. 4. Silver bracelet of chased and embossed elephants in open-work frames and joined by elephant's hair, from Madras.

(From *The Journal of Indian Art and Industry*)

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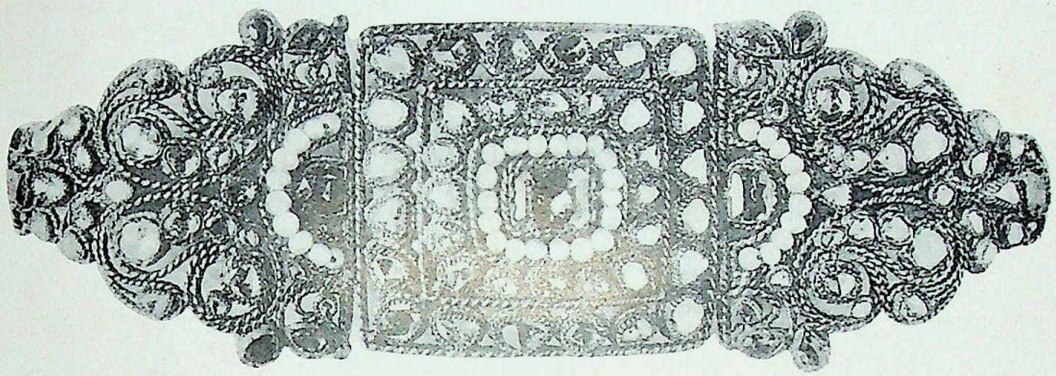

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Antique Indian Jewellery. 1. A necklace made up of plaques with an embossed floral design; the pendant plaque is a small talisman locket. 2. Brooch in silver filigree work from Cuttack, bow-shaped and composed of rosettes and leaves, with small pendants at each end. 3. A jewelled clasp in three sections, set with pearls, rubies, emeralds and diamonds in a rich pattern of gold filigree, from Banaras.

(From *The Journal of Indian Art and Industry*)

proportionately smaller. In this, the artist had probably bowed to Indian artistic tradition that demanded that the minor personalities of a group should be smaller in size than the principal figure. These fine images represent the only known examples of repoussé work except for the statue of Venkata at Tirumalai.

The art of metal sculpture of South India may be roughly divided into the following periods :

The Andhra and Chalukya Period
Pallava Period
Early Chola Period
Late Chola Period
Hoysala and Yadava Period
Vijayanagar Period
Post-Vijayanagar Period

The earliest of the South Indian bronzes known date from the Andhra and Chalukya dynasty which ended by about A.D. 642. Unfortunately, very few pieces of the period have come down to us, but the few that have, show characteristics similar to the stone sculptures of the times, especially the sculptures of the stupas of Sanchi and Amaravati. The latter especially seem to have had a very distinct influence on the metal sculptural art of South India. However, the images of the western kingdom of the Chalukyas, mostly in stone, show a marked Gupta influence.

The most important period is that of the Chola dynasty, the period of the sculptured temples of Madurai and Tanjore. Some figures of the Dancing Siva have been related to the earlier Pallava period by eminent scholars. But the real art of metal sculpture may be said to have begun with the Cholas. A very large number of examples of this period have fortunately come down to us, mostly individual figures, but often even groups, like a king and his consort, brother and sister, etc., grouped on the same pedestal. But as stated before, the representations of Siva are the most numerous, as also are those of Parvati and of Skanda, their warrior son. Besides, there are many "portraits" of Chola kings and queens, and Saivite and Vaishnavite saints and disciples. Though perhaps not factual portraits in the photographic sense, they perhaps do bear some resemblance to the original models, and the majority of the "portrait" sculptures bear the names of the persons represented.

Among the South Indian bronzes of the Chola period, are to be found the *deepas* or *deepams,* figures of human beings holding a lamp. These unique productions are very characteristic of the South Indian image-maker's artistry and imagination. Writing of them, O. C. Gangoly says : "These lamps or Deepas are of two kinds — those which were used for the ceremony of Arati (the waving of the lamp) and those that were kept burning before the images throughout the nights, as a symbol, as it were, of the burning devotion of the donor. Many of these lamps were artistically conceived in the form of a female figure holding the burner, the donor of the gift being suggested by the figure. These are now known as the Dipa-Lakshmis or 'beauty-lamps' and they inspired the South Indian bronze workers to produce some finest pieces of sculpture." (*South Indian Bronzes.*)

While the Pallava figures, like the stone counterparts of the same period, show elongated faces, wide noses, full and thick lips and often the suggestion of a double-chin, the Chola images are much more realistic, with all the natural rotundity and "fleshiness" of the human body. And they express full vitality and a natural dignity in spite of their conventional and codified attitudes and gestures. The Chola images show a round and smooth face and the decorations are simple. The necklaces are arranged round the neck in a circular pattern and do not hang down between the breasts, nor are they too heavy or ornate. The figures are usually shown as wearing an armlet above the elbow. Similarly, a girdle is seen round the waist and this is generally very realistically modelled. But the figures of the later Chola period were more conventionalised and stiffly formed, whether shown sitting or standing. The nose is featured more prominently than in the earlier period and the body itself appears more solidly constructed, emanating a sense of power and strength.

The Yadavas were at first suzerains of a score of petty vassal kingdoms till they fell heir to the northern possessions of the Chalukyas. A later dynasty, at first a minor one, was that of the Hoysalas who ruled at Dvarasamudra, the modern Halebid in Mysore. The art of these periods was florid and highly decorative unlike that of the chaste Chola school. It is generally presumed that they derived their style from the Western Chalukyan sculpture, especially as the Chalukyans were overcome by the Yadavas at a later date and merged with them.

The Chalukyan and the Chola metal art flourished side by side, though independently, for many centuries, to finally merge in the art of Vijayanagar (A.D. 1336-1646). The Vijayanagar style of sculpture continued for a long time after the sack of Vijayanagar, the City of Victory, by the Islamic armies in A.D. 1565. Again, a simpler style came into force ; the florid ornamentation disappeared. But this also led to poor modelling and formal unnaturalistic attitudes. The elaborate formality and conventionality is most apparent in the drapery. The faces also lack expression, with widely staring eyes. Two peculiarities are a vertical cleft in the chin and a sharp and prominent nose. The navel is depicted generally with lines surrounding it in the form of rays emanating from the centre.

With the post-Vijayanagar period came decadence and poverty of the creative urge. All life and vigour is absent from the figures, and even the craftsmanship seems to have deteriorated. And this is the style, a poor imitation of the former supreme technique and artistic genius, that has come down to us today.

Perhaps some of the finest examples of the South Indian metal art are the elaborate censers and votive lamps for ceremonial use in temples or at home, already mentioned above. Infinitely varied in shape

and size, they range from about a few to several hundred pounds in weight, depending on their destined use. But whatever their form or size they are superb specimens of craftsmanship, combining utility with aesthetic qualities. Though cast by the *sthapatis* according to the strict injunctions of temple worship, they show no stereotype uniformity, but on the contrary testify to the inventive genius of the craftsmen bound by ancient traditions and the necessity to conform to the innate symbolism of the wares produced. Though less ornate than the censers and devotional lamps of Nepal, the South Indian creations are more infinite in shape and perhaps of a higher artistic order.

The votive lamps or *deepams* form a very essential part of temple ritual and used to be presented by grateful worshippers "as a symbol of the burning devotion of the donors." V. M. Narasimhan tells us, "Peculiar, protective value was also attached to these votive lamps. If in the time of Kulotunga Chola III (A.D. 1178-1215) an accidental homicide was committed at a deer hunt, the person responsible was asked to atone for the sin by endowing a perpetually burning lamp in a temple for the benefit of the homicide 'in order that he may escape possible mischief from the revengeful soul of his victim.' " *(Marg,* IV, 3.)

So important must have been the value of the *deepams* that the *Silpa-sastras* have one full chapter devoted to the characteristics, classification and production of the lamps. Actually they are grouped into sixteen different classes named after the chief animal motif or deity to which dedicated. The ancient texts also prescribed that the lamps should have pedestals for "Mother Earth is accustomed to undergo all sorts of sufferings, but she will not put up with the heat of lamps."

According to V. M. Narasimhan, the most characteristic are the stand-lamps in the form of a tree with many branches, each ending in a small bowl to hold the ghee or oil and the wick. The simpler types consist of stands supporting shallow bowls for the oil and wick and with a rod in the centre terminating in a bird or flower, the former being generally a swan. When made without a pedestal, such lamps are hung from the ceiling with chains. Another very popular kind depicts a standing woman and holding a shallow bowl in her hands, the *Deepa-Lakshmis,* and some excellent specimens of this type still exist in many important temples in the south. More about votive lamps will be found in the chapter on "Handicrafts in Base Metals."

Reverting to metal images, we cannot do better than conclude in the words of Benjamin Rowland :

"In their canon of absolute, rather than human, beauty, and the almost mathematical purity and clarity of form, these images are the perfect symbols of the Indian ideal. Although cast in human shape, the abstraction of modelling and iconographic explicitness give them the power of a diagram. Like all Indian images, they were emblematic evocations, not descriptions, of a deity that the worshipper had always in his heart and mind. Indeed, the art of these South Indian icons is not the language of any one time or any one place, but a language that can be understood everywhere and eternally in the hearts of spiritual men."

NOTE

Siva's Nadanta dance represented by the South Indian metal sculptures of Nataraja, was supposed to have been first performed before the gods and *rishis* (sages) in the golden assembly hall of Chidambaram or Tillai, the God's southern home. It was revealed only after the heretical *rishis* had submitted to him in the forest of Taragam, the legend related in the *Koyil Puranam* and explained above.

Dr. Ananda Koomarswamy explains that the Nadanta represents Siva's Five Activities (the *Pancakritya*): *Shrishti* (overlooking, evolution, and creation), *Sthiti* (preservation), *Samhara* (destruction and evolution), *Tirobhava* (illusion, veiling, embodiment, and the conferring of rest), *Anugraha* (grace, release, salvation).

The central theme of the dance is cosmic activity. Dr. Coomarswamy quotes Verse 36 of the *Unmai Vilakkam:* "Creation arises from the drum: protection proceeds from the hand of hope: from fire proceeds destruction; the foot held aloft gives release." And, again, "It will be observed that the fourth hand points to this lifted foot, the refuge of the soul."

JEWELLERY OF INDIA

It is the Indian's innate love of the beautiful, especially of personal adornment, that has kept the art of jewellery making alive in this country through the centuries. K. de. B. Codrington has said, "The fact that jewellery is a traditional form of wealth and that a man will hang his earnings round his wife's neck and arms and ankles is not merely to be regarded as an unsocial antiquated form of hoarding. It is delightful and until the new world with its co-operative societies and schools can give equivalent value in delight, it will certainly go on."

Indian jewellery is made of the purest and finest materials whenever they can be afforded and wrought with all the delicacy and elaborateness within the reach of the jeweller's art. Shanti Swarup observes, "In nothing do the people of India display their sense of the gorgeous and the artistic so much as in their jewellery."

The story of Indian jewellery can be traced right back to very ancient times. Various kinds of ornaments are mentioned in the *Rig Veda.* It tells of the Maruts decorating themselves with various ornaments and "shining necklaces are pendent on their breasts." The sage Kakshivat, the author of many of the hymns of the *Rig Veda,* prays for a son "decorated with golden ear-rings, and a jewelled necklace."

Referring to the Indus Valley Civilisation, Sah Oved speaks of Chenhu-Daro, "from 3000 B.C. a town of jewellers and toymakers, whose wares were exported as far afield as Sumer, Egypt, and Troy." According to him, "The chief industry was bead making, and it must be realised that before the invention of coinage such attractive and conveniently transported objects as beads were of great service in bartering and had economic importance." (*The Book of Necklaces.*)

The bead-makers of Chenhu-Daro, and probably also of Mohenjo-Daro and Harappa, were skilled craftsmen, with a knowledge of gold and silver soldering. "They could make hollow beads from sheetmetal, or solid beads by casting, and they had a predilection for a highly polished surface and geometric decoration." Sah Oved then goes on to give some technical information :

"In the making of stone beads the nodule was, when its nature permitted, split along the longer axes to produce a roughly squared rod. This was struck off with a copper tool into the required length, flaked longitudinally into shape, and rubbed smooth with a hone. It is suspected that a type of lathe was used for finishing. When the ends had been flattened a rough patch was produced with a flake of flint, which had a splintering rather than a cutting effect, enabling a drill to bite without slipping. The drills were of black or brown chert, from an inch to an inch and a half long, with a small depression in the head to hold the fine abrasive and water necessary for cutting." It must be remembered that this was as far back as 3000 B.C.

Apparently, the bead-makers of the Indus Valley sites were not ignorant of certain chemical reactions. They could make faience from silica and flax and even colour it artificially. They knew that the golden brown carnelian could be turned into a rich deep red by heat and that "by boiling crystal in soda with copper at a temperature sufficient to fuse the surface they gave it an icy glitter with traces of turquoise blue." They could give the common soapstone a glazed surface from which tiny beads were made, threading them so they could be worn as necklaces.

Sah Oved believes that the Indus bead-makers were the inventors of the process of making the highly decorative "etched carnelian" beads, which were exported to places as far away as ancient Sumer and Troy as such beads found in the early graves of Ur testify. The geometrical and other designs were produced on the carnelian with strong alkaline solutions and the stone then heated between layers of glowing coal to make the white etched lines of the design permanent. Sometimes the alkali proving too strong, there was unequal expansion which made the white lines of the design to disintegrate, leaving fine depressed lines giving the appearance of etching.

In the great classic, the *Ramayana,* Sita is arrayed for her wedding in a gossamer-fine rosy-red garment embroidered with gold, and jewelled butterflies and other precious ornaments adorn her beautiful black hair. There are gems in her ears, the arms and wrists are covered with bracelets, while a golden band binds her slender waist, and anklets of gold shine on the feet. Rings are on her fingers and golden bells tinkle to the tune of her graceful gait. As to Rama himself, "long were his arms and clasped with glittering bangles . . . his signet ring would ravish all hearts . . . lustrous were his many wedding adornments and the stars and collars on his broad breast ; across his shoulders a yellow scarf with fringe of gems and pearls . . . while on his head the auspicious marriage crown shone glorious with knotted pearls and gems." (Growse translation.)

In the *Mahabharata,* King Yudhisthira is reported to have lost a "very beautiful pearl" during a gambling match at Hastinapur. Among the other things he gambled and lost were a chariot set with gems, elephant howdahs scintillating with diamonds, 100,000 slaves dressed from head to foot in golden ornaments !

The author of the famous classic Sanskrit drama, "The Little Clay Cart," written sometime in the fifth century A.D. — though according to some dating as

far back as the first century A.D. — describes a jeweller's shop, "where skilful artists were examining pearls, topazes, emeralds, sapphires, lapis lazuli, coral and other jewels. Some set rubies in gold, some string gold beads in coloured thread . . . some string pearls, some grind lapis lazuli, some cut shells, and some turn and pierce coral." We read of "golden stairways inlaid with all sorts of gems," and "crystal windows from which are hanging strings of pearls."

The importance attached to jewellery in those early days is further exemplified in this great classic play by the royal dramatist King Sudraka, its author. The latter was apparently well aware of the imitative excellence of the jewellery of those times. During the course of the play, a question is asked in a court of law about the identity of certain ornaments, and the Judge questions :

Judge : "Do you know these ornaments?"

Mother : "Have I not said? They may be different, though like. I cannot say more ; they may be imitations made by some skilful artist."

Judge : "It is true. Provost, examine them ; they may be different, though like ; the dexterity of the artist is no doubt very great, and they readily fabricate imitations of ornaments they have once seen, in such a manner, that the difference can scarcely be discernible."

Even the Code of Manu, probably about 2000 years old, contains a description of the jeweller's craft. It goes further and enjoins certain fines for poor workmanship and heavier penalties for debasing and alloying of gold to the detriment of the precious metal.

If any further proof were needed, the early sculptures at such sites as Bharhut, Sanchi, Amaravati, Bhubhaneshwar, Konarak, Puri, and many other places, show the lavish use of jewellery which has been minutely and carefully depicted and which further indicate that the ancient designs have not changed very much. "From the third century B.C. the balustrade of the stupa of Bharhut gleamed in sunlight and moonlight, the icy white petals of its carved flowers dripping necklaces upon the steps below. Women passing with devotional offerings of rice and rancid butter saw represented in frozen curves the ornaments lying warm upon their breasts, a thousand lines of seed pearls folded over and gathered into plaques, multiple strings of round beads whose centre ornaments, like a flight of steps, were long square-cut blocks of emerald, and dual pendants of the divided Triratna, symbol of the Triple All-Supreme." (Sah Oved.)

Remains of jewellery have been found at Bhir, Sirsukh and Sirkap, cities of ancient Taxila, represening the Greek influence on the Gandhara school of Indian art. Here have been discovered ear-rings, bracelets, necklaces, rings, hairpins, clasps and pendants, all superbly made and indicative of the high level to which the jewellers' art had reached even by that time.

It is apparent from a study of ancient literature and the art relics of early centuries that jewellery of more or less the same kind was worn both by men and women. A study of the Ajanta frescoes will well repay the reader. It is noteworthy that the princess shown painted in Cave II is devoid of almost all clothing but is nevertheless profusely ornamented with jewellery. As Jamila Brij Bhushan rightly observes, "It would seem that ancient India had experimented with and perfected the art of self-decoration so much that in the twenty centuries that have elapsed since Taxila we have not been able to improve on these patterns and workmanship. We have evolved a few patterns but they only compete with the old ones but are hardly an improvement."

The famous traveller Paes has left us a record of the great splendour of Vijayanagar in the early sixteenth century and has described the maids of honour of the Vijayanagar queens : "They have very rich and fine silk cloths ; on the head they wear high caps . . . and on these caps they wear flowers made of large pearls ; collars on the neck with jewels of gold very richly set with many emeralds and diamonds and rubies and pearls ; and besides this many strings of pearls, and others for shoulder-belts ; and on the lower part of the arm many bracelets, with half of the upper arm all bare, having armlets in the same way all of precious stones ; on the waist many girdles of gold and of precious stones, which girdles hang in order one below the other, almost as far down as half the thigh ; besides these belts they have other jewels, for they wear very rich anklets, even of greater value than the rest . . . Who is he that could tell of the costliness and the value of what each of these women carries on her person?" (Quoted by Dr. Ananda Coomaraswamy.)

It is certain that finger rings have been in common use in India since very early ages, and even the Brahmins of old who dwelt in the dark jungles and lived a life of utter simplicity, used to wear rings made of the *khus* grass (*Saccharum spontaneum*). Even today, during religious ceremonies a ring is worn, and the Bengali Brahmins wear on the fourth finger a ring made of an alloy of eight different metals.

Rings are mentioned in the *Mahabharata* and engraved ones in the *Ramayana.* When Sita had been abducted by the ten-headed Ravana of Lanka and Hanuman secretly went there as Rama's emissary searching for her, he introduced himself to Sita with her husband's engraved ring :

" 'I am henchman of Sugriva and the mighty sea have crost,
In the quest of hidden Sita, Rama's consort loved and lost,
And methinks that form of beauty, peerless shape of woman's grace,
Is my Rama's dear-loved consort, Rama's dear-remembered face ! '
Hushed the voice : the ravished Sita cast her wond'ring eyes around,

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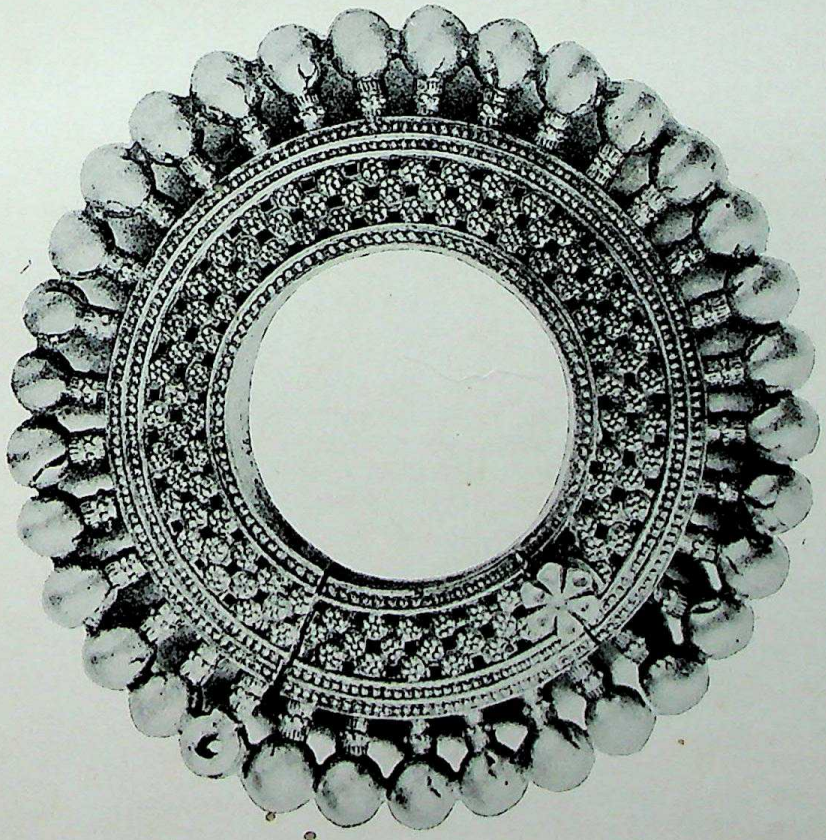

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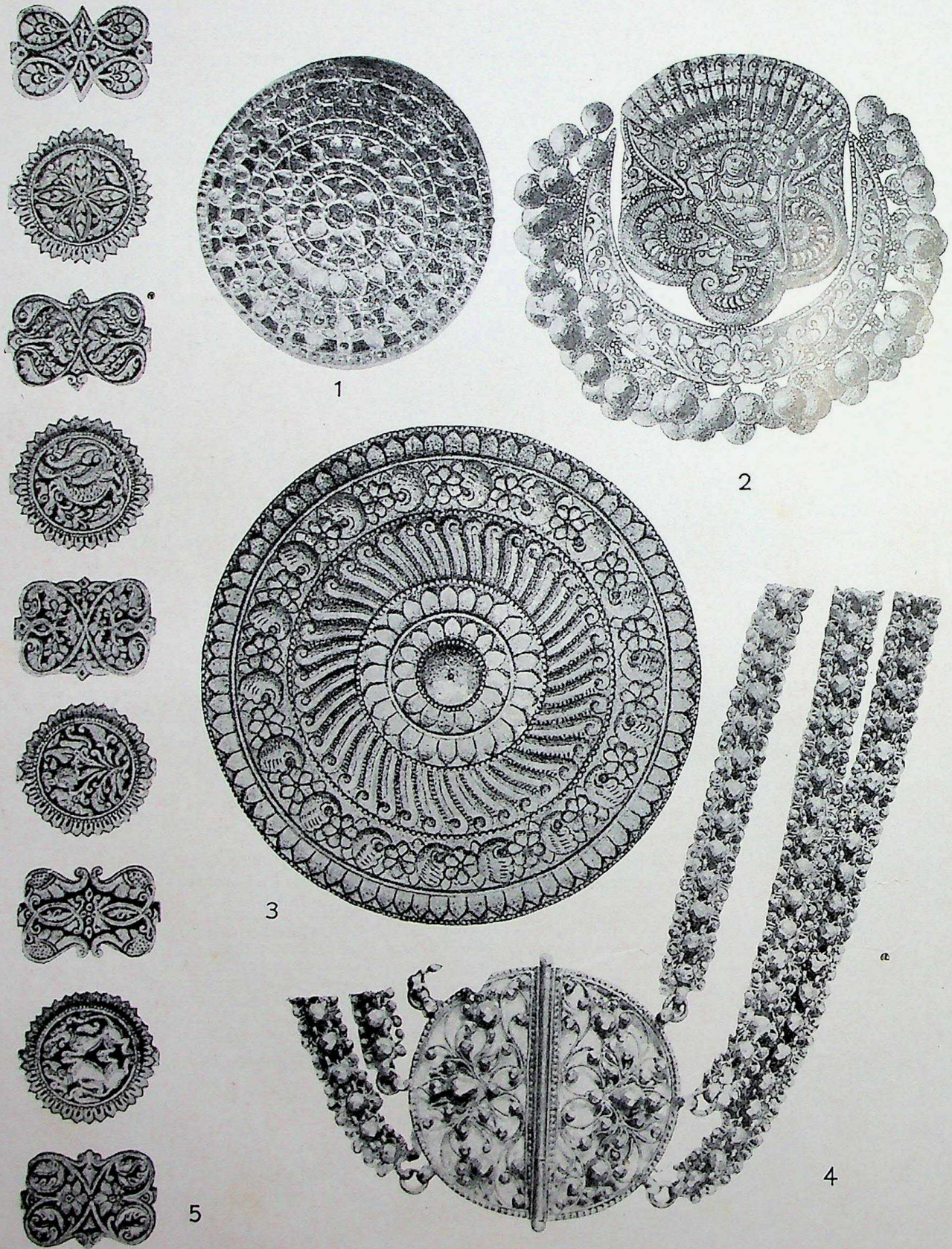
Traditional Indian Jewellery. 1. A bracelet of carved and incised oval beads strung together on thread by means of rings ; from Marwar. 2. A silver ear-ring (*dhedu jhumka*) worn by women of Chamba ; the upper part is a cone decorated with applied ornaments and with a ring of knobs round the outer edge. 3. A silver anklet or bracelet of open-work design and a ring of ball ornaments round the perimeter ; from Bombay region.

(From *The Journal of Indian Art and Industry*)



Traditional Indian Jewellery. 1, 2, 3. gold ornaments for the head, from Madras. 4. Waist-belt made of chains of gold filigree and an open-work clasp. 5. Nine ring designs.

(From *The Journal of Indian Art and Industry*)

A richly embossed and chased round silver tray from Poona. Probably middle 19th Century.
(From *The Journal of Indian Art and Industry*)

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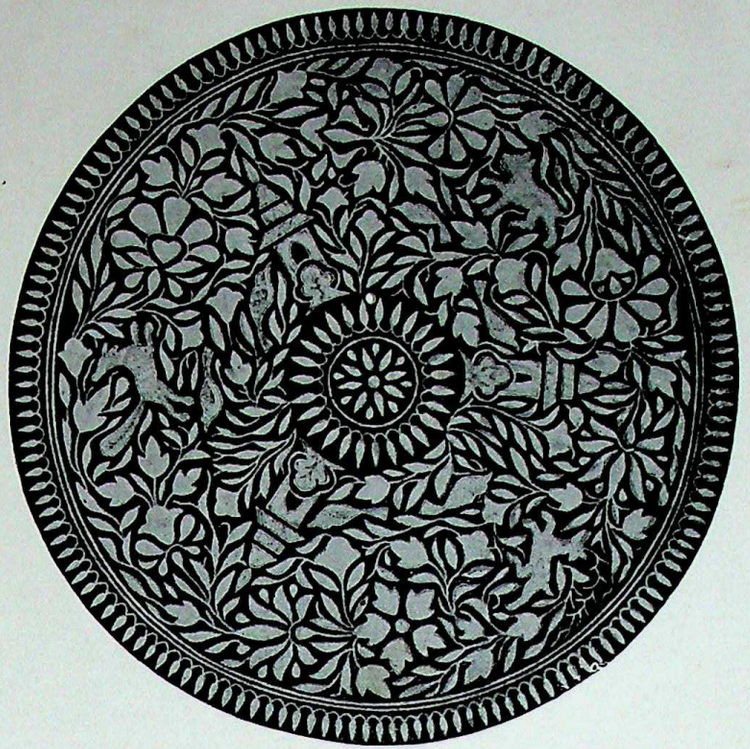

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1. Hammered silver wine jar from Kutch ; of superb workmanship, its design of grapes and vines makes it evident that it was meant for keeping wine. 2. Silver plate enamelled in black, from Lucknow. 3. Repousse silver vase from Kutch ; of excellent finish, its handles of elephant's heads are elaborate and well-modelled.

(From *The Journal of Indian Art and Industry*)

Whence that song of sudden gladness, whence
that soul-entracing sound?
Dawning hope and rising rapture overflowed
her widowed heart,
Is it dream's deceitful whisper which the cruel
Fates impart?
''Tis no dream's deceitful whisper!' Hanuman
spake to the dame,
As from darksome leafy shelter he to Rama's
consort came,
'Rama's messenger and vassal, token from thy
Lord I bring,
Mark this bright ring, jewel-lettered with the
dear name of thy king . . .'"
(Romesh Dutt translation)

In ancient Sanskrit books, many different kinds of rings are mentioned :

Dwi-hirak : A ring with a sapphire in the centre and diamonds on each side.

Vajra : A triangular ring with a diamond in the centre and other gems on the sides.

Ravimandal : A ring with diamonds in the centre and other gems on the sides.

Nandyavartta : A squarish ring studded with precious stones.

Nava-ratna : A ring in which the nine precious stones of ancient Sanskrit lore are set : *hirak* (diamond), *manikya* (ruby), *baiduryya* (cat's-eye), *mukta* (pearl), *gomed* (zircon), *bidrum* (coral), *marakata* (emerald), *pushpa-rag* (topaz) and *indranil* (sapphire).

Bajra-beshtak : A ring with diamonds set on the upper edge.

Tri-hirak : A ring with a large diamond in the centre and two small ones on the sides.

Sukti-mudrika : A ring fashioned like the hood of a cobra, set with diamonds and other precious stones.

Anguli-mudra or *Mudra :* A ring with a name engraved on it.

Necklaces and bangles also play an important part in Indian jewellery. Regarding the former, Sah oved writes :

"Nature has a prominent place in the designs for necklaces. In the Western Ghats and in Madras Presidency torc twisted from creeper and rattan are still worn, beads cut from hollow grass stems, and necklaces of chipped and knotted grass whose designs show clearly that on them is based much of the traditional gold and silver work. Plant derivatives have a perennial charm, even when the leaves and buds and seeds are over-decorated in sharp Indian chasing. Many forms which appear to be softened geometric shapes really represent seeds and flowers : thus the lightly fluted spikes, headed with a rosette or a flat disc, which radiate from Trichinopoly necklaces are traditionally buds of jasmine. It is possible that everywhere a long-forgotten evocative purpose underlies necklaces, which in Europe would have caused them naturally to belong to the fertile Mother Goddess.

"The tying of the Thali, or marriage necklace, had as integral a part in the Hindu marriage ceremony as the giving of the ring in the Christian ritual, but is now replaced by an exchange of garlands. Examples vary in different parts of India, but usually the necklace had some floral units. Its essentials were the talisman cases containing Sanscrit texts, which lay one on each collarbone of the wearer, and the central phallic emblem which varied with sect or race. Sect was indicated by a device at the back of this pendant, while the front might be decorated with the Tree of Life, the symbols of the sun and moon, or the rosette discs of these luminaries. The other units would be flowers, fruits, seeds. or ritual objects, chased or set with precious stones. The thalis of Coastal Malabar and South Canara were of stiff bars elaborately built up with motifs of wire, granules, or paillons of burnished sheetmetal, with a rosette and bud hanging from each bar. Whatever form the units might take they were invariably threaded, with the strings for the necessary tying ending in tassels." (*The Book of Necklaces.*)

Regarding the Indian bangle or bracelet, Dr. Ananda Coomaraswamy has an interesting fact to relate :

"What unsuspected romance can attach to a woman's bracelet is seen in the Rajput custom of *rakhi*-gift. A bracelet — not necessarily valuable — may be sent by any maiden or wife, on occasion of urgent need or danger, to a man of her choice. He becomes her 'bracelet-bound brother,' and owes her all the devotion and service that knight could render. The chosen brother returns a *kuchli* or bodice in token of acceptance of the pledge. But no tangible reward can ever be his, though he may risk life and kingdom on her behalf ; for he may never behold her, who must remain for ever unknown to him, as to all other men, save her husband and near relations."

But, alas, the days of chivalry and knighthood are long past. And today no *rakhi*-gift will bring even the chivalrous Rajput to the aid of a woman in distress.

With the Muslim advent into India, jewellery may be said to have had a new lease of life, if it ever needed any. But it is certain that the Mohammedan influence certainly revived an art-craft that had fallen into a rut and ceased to develop and progress. The Muslim conquerors injected a new vitality and creative desire, a fresh impetus into a decaying art, by patronizing craftsmanship and infusing new ideas that they had brought with them from their homelands. The synthesis of the Hindu and Muslim cultures, both inherently decorative, reached its peak in the era of the Mughals, in the brilliance and splendour of their courts, dazzling in their lavish ostentation yet with all the dignity of refined taste. The Mughal rulers had the leisure, they had the wealth, to feed their desires and their inclination to support and patronise the fine and industrial arts of the country of their adoption.

It was at this period of history that the art of enamelling reached its zenith, the enamelled jewellery

of the age taking on many of the attributes of the delicate beauty of the painted miniatures of the Mughal school. Even the backs of ornaments were superbly enamelled with beautiful designs, floral and geometrical, with birds and beasts, trees and flowers, probably to preserve the gold from constant contact with the human skin, apart from the fact that this must have given the jeweller further scope for exhibiting his skill and his art ; for without any doubt, the craftsman of the age was an artist first and a craftsman only next. Often the front of the ornament was set with precious stones held in place by pure gold bands called the *kundan*. Only the finest and purest gold was used for the enameller's art for such alone could do full justice to the love and labour lavished on the creation of precious beauty.

The art of enamelling has been dealt with in detail in a later chapter on the Metal Crafts in Gold and Silver. Although Jaipur enamels stand supreme, those of Delhi, Kangra, Multan and some other parts of the united Punjab of old, were not negligible either in quantity or quality, some of the Delhi work being as good as that of Jaipur. In Multan and Kangra, the light blue vitreous enamel was the most popular. According to J. L. Kipling, "Red and yellow are not so often seen, and the colours, though true vitreous enamel, are opaque. It might be described as Champlevé in so far as that the enamel is laid in hollows between raised lines of metal. These are, however, produced by hammering the silver plaque into a steel *thappa* or die and not by graving out." In Multan, silver ornaments enamelled in light or dark blue, red, black, and a poor yellow, were and are made, but these are inferior specimens as compared to those of Jaipur or Delhi.

Regarding the work of the Kangra Valley, Mr. Kipling wrote at the closing of the last century :

"The silversmiths of Kangra are skilful in the application of vitreous enamel to small articles of silver used as ornaments. Finger and toe-rings, necklaces in great variety, and ornaments for the brow, head, and ears, connected by chains, are decorated in dark blue and green enamel. The patterns sometimes include figures . . . An old Kangra pattern of anklet, now seldom made, is a series of birds of very archaic design in enamelled silver, connected by silver links."

Enamelling of jewellery is also done at Bikaner, Jodhpur (partly enamelled gold and silver ornaments for the neck called *timniya* are common here), Alwar, and Jorhat in Assam. In the latter place, strikingly beautiful effects are achieved by the use of blue, white and green enamels, on bracelets, lockets, ear-rings, and necklaces. The style of the Ratlam and Indore work is very different. It is said to consist of "thin gold leaf cut into fine and elaborate designs, and laid on glass of various colours. It is frequently bordered with silver or gold filigrain, and is very effective in appearance."

The Mughals were great lovers of precious stones, especially pearls and diamonds. Describing Emperor Jahangir's jewels at the time of his departure from Ajmer on 10th November 1616, Sir Thomas Roe, British Ambassador from the Court of James I, wrote in wonder : "On his head he wore a rich turban with a plume of heron tops not many, but long ; on one side hung a ruby unset, as big as a walnut ; on the other side a diamond as great ; in the middle an emerald like a heart, much bigger. His sash was wreathed about with a chain of great pearls, three double, so great I never saw ; at his elbows armlets set with diamonds, on his wrist three rows of several sorts. His hands bare, but almost on every finger a ring." The Emperor's attendants carried maces of gold studded with jewels ; the horse appurtenances were also set with fine gems ; even the palanquin was of gold gilt covered with pearls, and a fringe of pearls hung from the top in ropes almost a foot long, bordered with rubies and emeralds.

On the same day Sir Thomas Roe had a fleeting glimpse of the ladies of the court. The light was dim but just bright enough to show him that they were "indifferently white" with raven black hair. "But," says he, "If I had no other light, their diamonds and pearls had sufficed to show them."

The Mughals did not evolve new designs or types of jewellery, but lavished all their attention on increasing and improving the modes of ornamentation. The finish of the jewelled articles improved in quality and more refined gold was used. Yet their love for ornamentation was kept in balance by their inherent love for true beauty, their aesthetic sense keeping their inclination towards ostentation well within the bounds of good taste. At imperial Delhi, a speciality developed : the incrustation of jade with floral patterns — the stems in gold and the flowers and leaves in garnets, diamonds, rubies and other precious and even semi-precious stones. The whole provided rich beauty and this mode of ornamentation was used not only for personal jewellery, but for the embellishment also of sword hilts, dagger handles, mouth-pieces of hookahs, the heads of walking sticks and many other such articles of daily use.

The decorative motif of the Mohammedan period was chiefly floral. The *Mohan-mala,* consisting of gold beads formed in the shape of melons, was an especial favourite. The *Champakali* or necklace in the representation of the buds of the *champa* flower, though originally a Hindu design, was equally popular with the Mohammedans. It should be noted that Islam forbids the depiction of the human figure in any form ; but animal forms were tolerated and were used, many bracelets ending in animal heads. The round plain bracelets or *Karas* generally terminated in the heads of elephants or lions, while the flat bands of the *Jhoomer,* an ornament for the head, ended in the representation of a peacock's head with all the details and the beak and eyes in rich enamels. The fish also was frequently represented and is even today. But the most important feature of Muslim jewellery is a combination of the star and the crescent. For example, ear-

rings were made with a tiny star at the top and a crescent below from which hung the emblem of a fish, the whole terminating in a bunch of pearls or tiny precious stones.

The advent of the British into India and the fall of the Mughals also saw the decadence of Indian jewellery. The patronage of the rulers was no more and the craftsman could no longer afford the luxury of spending too long over a piece of work, nor lavish the art on it that he would have liked. The use of plain ornaments of solid gold became more and more popular, and silver began to be used with greater frequency. The *kundan* setting of stones lost favour and the "open claw" setting began to gain popularity, probably under Western influence. The quality of enamelling steadily deteriorated and the backs of jewellery were no longer embellished with all the skill afforded to the front as in the days gone by.

Some of the finest jewellery, in the best tradition, used to be that of Mysore, Savantwadi, Vizagapatam and Vizianagram. The art of the jewellers of these places consisted in producing an ornament from the smallest possible amount of the precious metal, the gold often being beaten to the thinness of paper, without however impairing its strength or the visual effect of solidity. Sir George Birdwood ecstatically writes : "By their consummate skill and thorough knowledge and appreciation of the conventional decoration of surface, they contrive to give to the least possible weight of metal, and to gems, commercially absolutely valueless, the highest possible artistic value, never, even in their excessive elaboration of detail, violating the fundamental principles of ornamental design . . . You see a necklace, or whatever ornament it may be, made up apparently of solid, rough cut cubes of gold, but it is as light as pith. Yet, though hollow, it is not false. It is of the purest gold, 'soft as wax', and it is this which gives to the flimsiest and cheapest Indian jewellery its wonderful look of reality."

The jewellery of the Punjab and of Kashmir also was once highly prized, especially the enamelled and gemmed types, often combining a great deal of gold filigree work in "ruddy gold." The Delhi jewellery may be rather artistically inferior, but has a pretty charm about it which makes it popular. The jewellery produced at Oudh was more or less of the same type as that of Delhi and Lahore, while that of Sind showed a family resemblance to the jewellery of the Punjab. The fame of Cuttack for silver filigree work needs no special stress. It is too well-known. However, this type of work, both in gold and silver, is also produced at Dacca, Murshidabad, Tanjore, and Tiruchirapalli (Trichinopoly), and jewellery of all kinds at Monghyr, though as a rule the Bengal products show a slightly clumsy artistic form.

As to Kashmir, "In making jewellery the Kashmiris are very ingenious, and though their work has not that lightness so charming in that of Delhi, it has a peculiar style of its own which it were vain to imitate." (J. Ince, *Kashmir Handbook*, 1876.)

The Gujarat and other parts of Western India also used to be famous for certain types of jewellery. That from Gujarat was, and is, rather of a heavy style and angular in design. The ornaments of southern India necessarily show the mythological influence of the region, though superb in quality and craftsmanship. It is worth noting that the jewellers of Tiruchirapalli (Trichinopoly) in the south often specialised in producing ornaments suited to those of the Christian belief, especially crosses, chains, heart pattern necklaces, rosaries and bracelets with religious motifs.

Jewellery abounded in the old princely states of Rajasthan and Mewar and according to T. H. Hendley, the State ornaments of a Rajput prince consisted of "A plume and a *sarpesh* or turban ornament, the former part springing out of the latter ; necklaces of gems and gold studded with gems and perhaps enriched with enamel ; armlets, bracelets, anklets of gold, plain or adorned with precious stones and enamel ; finger rings ; and arms, the sheaths, scabbards, and handles of which are lavishly encrusted with scales of diamonds and other gems, or are enriched with beautiful designs in enamel or gold damascening, and perhaps a shield is carried which is of priceless value."

Colonel Hendley further reported that he had the opportunity of examining some beautiful pearls belonging to the then ruling Maharaja of Jaipur, "pearls as large as good-sized marbles, which could be worn either as parts of a single or double thread. These beautiful gems were pierced at right angles to enable this to be done. When used as a single thread two of the openings were filled up temporarily with small seed pearls."

The jewellery of Assam is quaint and unusual in its form as compared to that of the other parts of the country. Therefore, the following brief description based on that of H. Z. Darrah, will interest the reader.

The most popular of the jewellery of the Khasssia and Jaintia Hills of Assam are the coral and gold necklaces, consisting of alternate beads of coral and gold, strung together on a thread. The gold beads are naturally not solid, but hollow and filled with lac to give them substance.

Very fine filigree work is produced in certain districts of Assam, chiefly bracelets and necklaces. The gold and silver ornaments of Sylhet are copies of those of the adjoining state of Manipur. According to Mr. Darrah, the commonest ornaments are the *kankan*, a bracelet worn in pairs on the wrists, the outer surface being of gold and the inner of silver, elaborately ornamented with flowers, wreaths, etc.; a kind of bracelet called *kharu*, either of silver or of gold, worn in pairs on the arms ; the *sonapoki* is a necklace made up of twenty-one beads as a rule, each bead being a rounded cone-shaped shell of gold with a silver base and the interior filled with lac. There are also two tiny rings at opposite ends of the diameter by means of which they are joined to one another to make the necklace. The *gulluguta* or *bethguta* is also a kind of necklace meant for children, while the *sonapoki* is for women.

The former differs from the latter in that the beads are cubic in shape with truncated angles and the gold shell is filled with lac. A gold armlet worn by women is called the *baju*.

Heavy jewellery has always been popular with the natives of the Himalayan regions. "The women of the Bhotiyas, the Tibetan-speaking races of all these countries, wear massive amulets and charms, like breast-plates, of gold and silver filigree work set with turquoises ; and their prayer-wheels and rosaries are also bejewelled," writes Lieut.-Col. L. A. Waddell. According to him, the Nepalese women "overload themselves with massive jewellery ; enormous gold and silver ear-rings, nose rings, bracelets, anklets, finger rings, and necklets of huge size, made of coral or thinly beaten gold or massive silver, or strings of coins reaching down to their waists." (*Among the Himalayas.*)

This love of finery is exemplified by the following lines of a love song that Lieut.-Col. Waddell heard near Darjeeling :

"My love is like the image in a pure silver mirror,
Beyond the reach of grasping hands, and only won by loving heart.
Like a tree of costly coral, like a leaf gemmed with turquoise,
Like a fruit of precious pearls, you, my love, are rare.
You are loveliest of lovely flowers, and where'er you go,
I, as a turquoise butterfly, will follow my flower."

Needless to say the turquoise and the coral are very popular in the Himalayan regions and widely used not only in jewellery but also in the decoration of boxes, plaques, and other metal *objects d'art*.

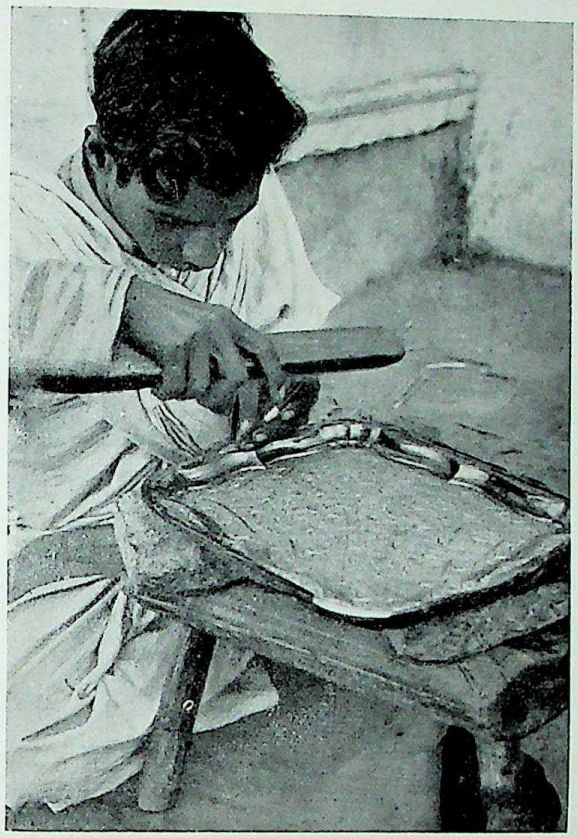
In a previous chapter it has been stated that the *cire perdue* or "lost wax" technique is used in the production of metal figures. The same method is used for the casting of peasant ornaments in brass in the south. However, according to E. B. Havell, "the wax model is prepared in a peculiar way. It is not generally 'modelled' in the technical acceptance of the term, but just as the native goldsmith often constructs his work with minute pieces of wire and plates and globules of gold soldered on to a foundation, these brass-smiths build up the original model piece by piece with wax. A piece of bamboo with a perforated brass plate fitted at one end does duty for the wire-drawing plate which the goldsmith uses. A lump of wax sufficiently softened is made into long threads by pressing it through the perforated plate with a piece of wood fitting into the bamboo tube." This piece of wood acts like the plunger in a syringe to force out the wax. "A flat piece of wax moulded on a piece of bamboo to the required shape of the armlet or other ornament forms the foundation on which the ornamentation is built," Mr. Havell explains. "The wax threads are used in a variety of ways. They are twisted to form a 'cable' pattern, or turned into the spiral ornament . . . Two 'cables' placed side by side are slightly flattened to form a plait. The rosettes and other details of the ornaments are made by pressing into brass dies." The author believes that "from the similarity in technique and style of design between these brass ornaments and the silver and gold jewellery worn by various low castes, I think it may be safely assumed that the technique, as well as the design, have been borrowed by the brass workers from the goldsmiths." (*The Journal of Indian Art and Industry,* Vol. IV, 1892.)

During a lecture in 1901, Sir Thomas Wardle said : "I bought for a few annas a bronze chain anklet, but all cast in one mould together, quite a common thing, but so wonderfully made that one of our best foundry owners told me he did not think anyone could do it in Europe."

Sir Wardle was referring to an interesting variation of the *cire perdue* technique used in the making of the *sant* or flexible chain anklets of base metal, for the use of peasant women, at Bundi in Rajasthan. These chain-like ornaments for the ankles are surprisingly enough cast in one piece. A long string of a plastic composition of wax, resin and oil is first prepared and then wound spirally round a stick of the diameter of the intended links of the anklet. A cut is made along the axis of the stick to sever the coiled wax, the individual wax-rings are carefully separated and interlaced everyone into two others to form a chain. Each link is closed again by the application of a hot knife to melt the wax. When a chain of sixty or seventy rings has been formed the end links are joined to form a perfectly flexible wax model of the anklet.

The wax model is next dipped into a paste made of cowdung and clay and finally coated with a thick layer of clay. When quite dry, the mould made as described is scraped carefully till a small area at the top of each link can just be seen, a wax leading line fixed, and the whole coated with clay once again. Two similar moulds are then placed next to each other in a case made of clay and black earth, the leading lines of wax from the two moulds led into a hollow at the top of the mould, and this cavity filled with metal and a little borax to act as a flux. The hollow is covered with some more clay so as to leave only a small blow-hole. The whole thing is now placed in a furnace, till the wax melts and the molten metal replaces it. The mould is now opened and the marks of the leading lines and all irregularities removed with a smooth file. The *sant* may now be plated with a mixture of pewter (40 parts) and crude ammonium chloride (1 part). A little of this is applied by heat and the ornament finally cleaned in cold water.

The art-craft of the goldsmith and jeweller is laborious and difficult and cannot be dealt with here ; but a few facts may be of interest. In Hindi, the goldsmith is commonly called the *sunar*, "the fashioner of gold," and he holds an important place in the social hierarchy of India's working classes. In Kautilya's *Artha-sastra*, "A goldsmith with a reputation for his birth, skill and reliable character was given a shop in



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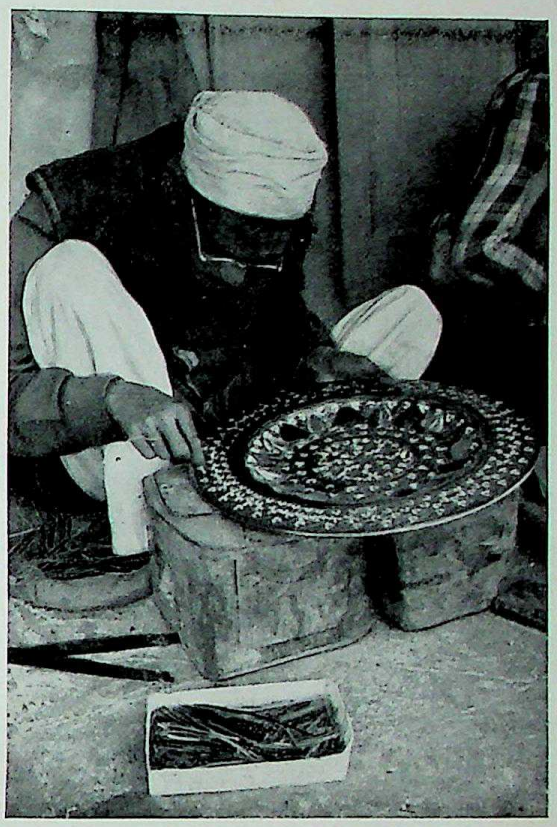

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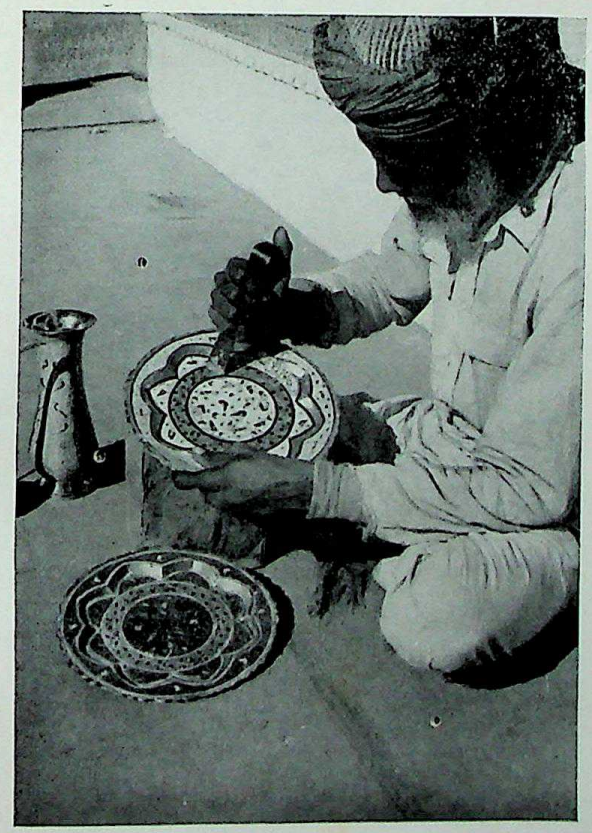

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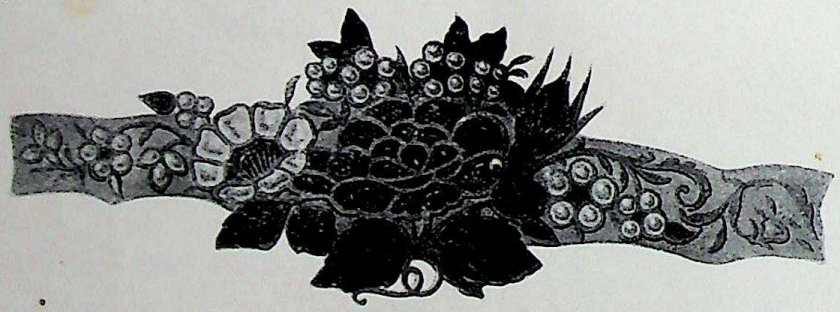
The enameller at work. 1. Engraving the design with the article placed on a bed of solid lac. 2. The article is placed on a *sigri* (stove) and the enamels painted on. 3. The excess of enamel is removed from the surface. 4. A group of finished articles : calendar stand, tray, etc.

(*Photos : B. Bhansali*)

Gold enamel work from Jaipur. *Top :* a beautifully enamelled gold salver, with red flowers, dark blue background on one side and dark green background on the other. *Bottom :* Gold bowl, beautifully enamelled with red flowers and green leaves on a white ground.

(From *Jeypore Enamels* by S. S. Jacob and T. H. Hendley)



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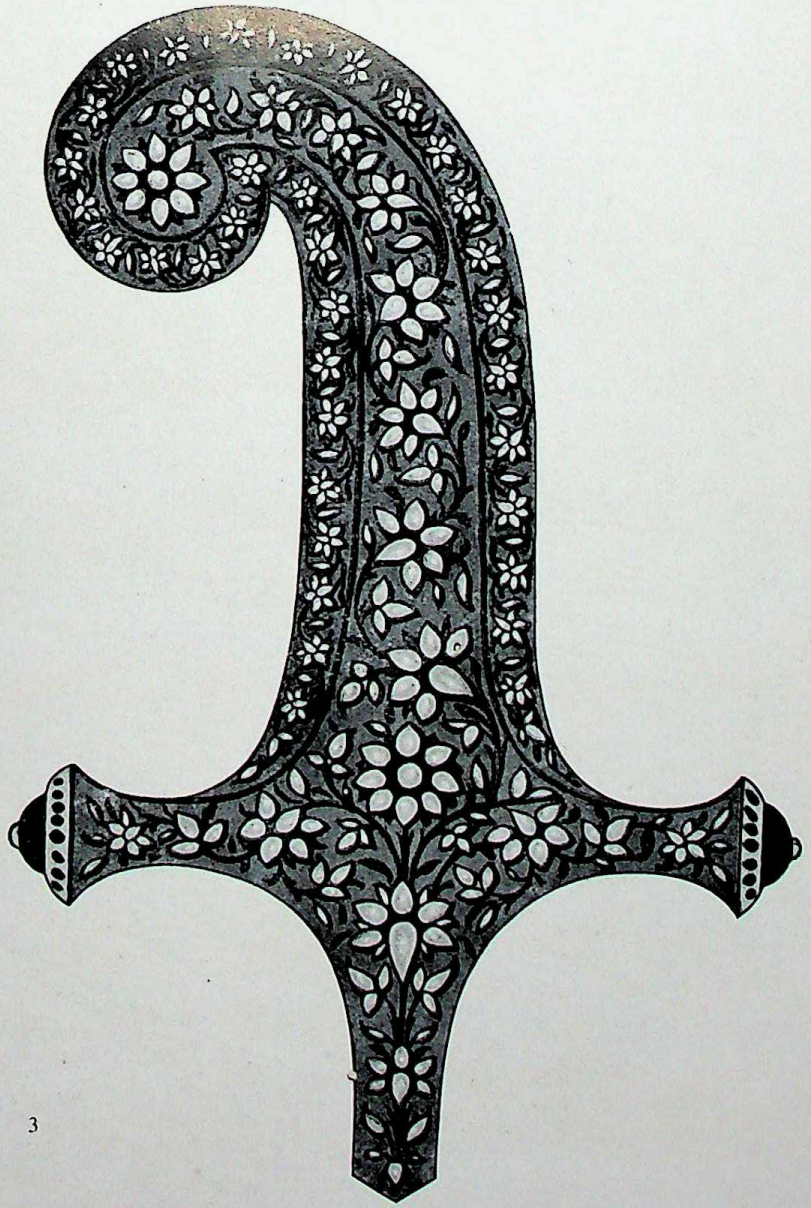

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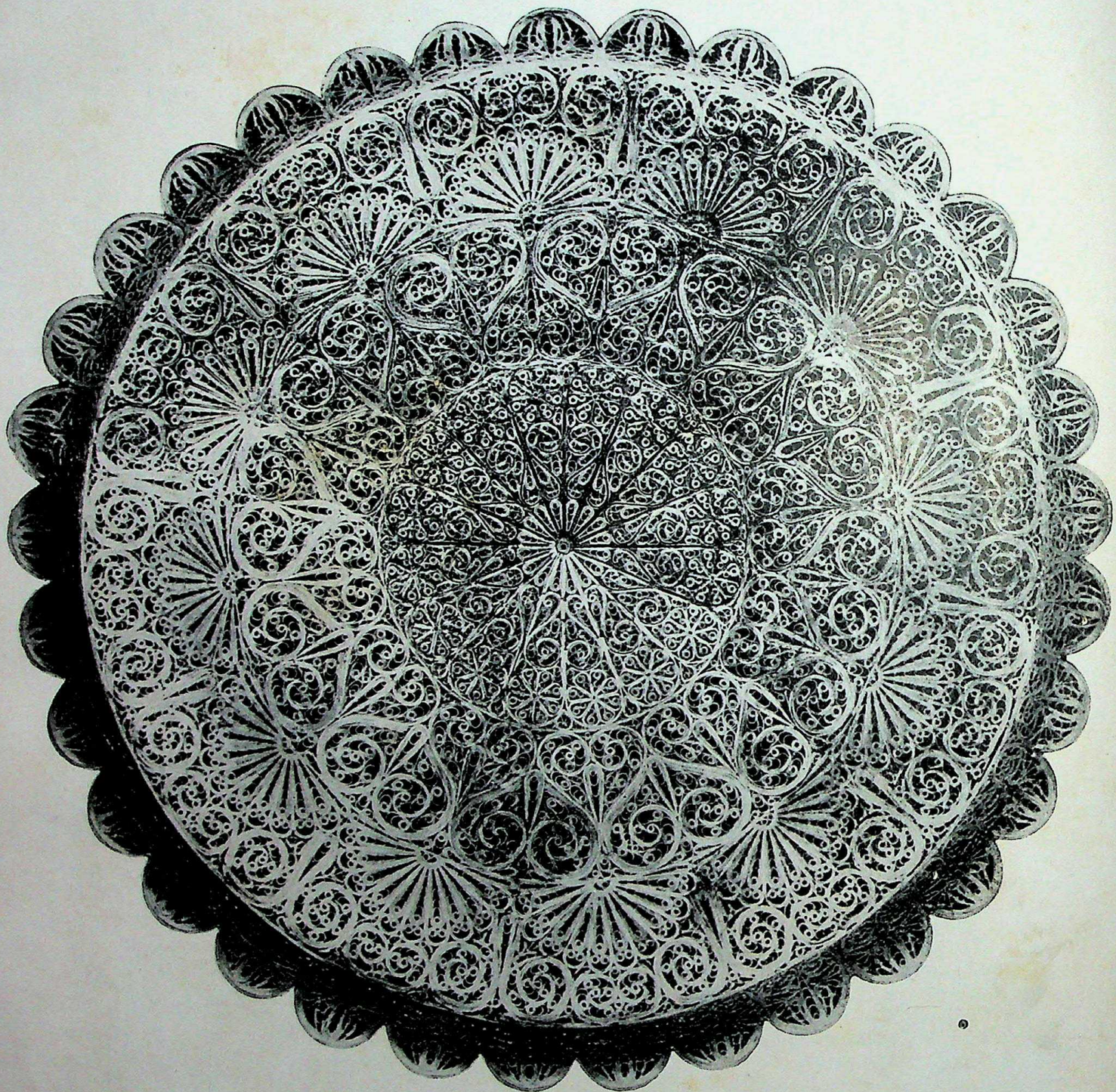
Jaipur enamel work. 1. Part of a bracelet in European design, enamelled and set with diamonds and pearls. 2. Gold covered cup decorated with lilies, lotuses, and chrysanthemums with painted petals and birds. 3. Enamelled and pearl-studded sword-hilt with a pistol-shaped head.

(From *Jeypore Enamels* by S. S. Jacob and T. H. Hendley)



Superb example of silver salver in filigree work.
(From *The Journal of Indian Art and Industry*)

the high road and was appointed the state goldsmith. Punishments are laid down for bad work and rewards for fine work."

Nowadays, the gold is imported from abroad in the form of ingots (*pasas*), but that refined in this country itself (*patla*) is also used, being cheaper than the former. The finest and purest gold is known as *kundan,* while *tezab-ka-rawa* is the gold refined from old ornaments by professional refiners.

Pure gold, because of its softness, is rarely used. It is generally alloyed with another metal like silver when it is called *phika; pitak* is an alloy of gold, silver and copper, while *swansa* is gold with a small proportion of copper.

The goldsmith of India is poorly equipped and prefers to rely on his skill rather than on a large number of tools or any form of machinery. The metal is melted in a crude clay crucible (*gharya*), in a furnace (*angetha*), generally consisting of an earthenware vessel in the villages. He also uses the blowpipe (*nal, phunki*) and a smaller curved one, the *banqual.* When the metal has fused it is poured into a narrow mould and when cool is ready for use. His other common tools are the anvil (*nihai*) and the hammer (*hathaura*), tongs (*chimta*), pincers (*samsi, zambur*), files (*reti, sohan*), and various types of small chisels or engravers (*cheni*). As in other countries of the world, gold wire is formed by drawing thin strips of the metal through a steel draw-plate bearing holes of different sizes and called the *janta;* while the metal is formed into shape by hammering it over brass blocks bearing depressions of different sizes (*pasa, kansi*), or by the use of various *thappas* or dies. The terms given here are those common in the Hindi speaking parts of the country and defer in other regions, but the implements are more or less the same all over the vast subcontinent of India.

Like his Western counterpart, the jeweller uses borax (*suhaga*) as a flux in hard soldering. The ornaments when made are successively polished with mango parings, salt, sal ammoniac (*nausadar*), alum and a form of iron oxide or rouge called *manik-ret.* This is not quite true in the larger cities where the goldsmith has taken to foreign and quicker-acting abrasives and polishing materials.

"In villages the *sunar* makes the ornaments, engraves them, sets them with stone and finishes them himself," writes Jamila Brij Bhushan. "In towns, the *sunar* after having prepared the skeleton ornament sends it to the *chatera* for engraving; to the *jaria* or *murassakar* or *kundansaz* for setting with precious stones, to the *meenasaz* for enamelling and so on. There is another set of men for stringing ornaments on silk or fine cotton threads ending either in a bunch of pearls or tinsel tassels." Specialisation and division of labour has thus invaded the cities and has perhaps led to quicker, if not necessarily better, work. Though, it must be admitted, the finish of the ornaments made in the large cities is definitely superior to that of the villages.

Many different types of ornaments are cast in moulds rather than beaten out of the metal. The model is first made from resin boiled with one-fourth its weight of oil. It is then encased in a covering of cow-dung and clay, with a hole provided for the pouring in of molten metal. It is next sealed with more clay to the mouth of a narrow crucible and placed on the fire. When the metal has melted it rises and enters the mould through the hole. The resin original melts with the heat of the surging metal and its place is taken by the latter to form the ornament.

Gold gilding is quite common these days and in the cities the methods common in Western countries is used. But the old *garm-mulamma* method of laying gold leaf on articles made of inferior metals is rather interesting. The article is first carefully washed and the parts to be gilded covered with mercury. The gold leaf is pressed into place with agate-tipped probes called *muharis,* and the article finally cleaned and polished carefully.

Indian filigree work has already been mentioned, the most famous being that of Cuttack. In favour of its great delicacy, Maskelyne has written : "It is said that even that delicate and most sensitive instrument of touch, the hand of the Hindu, is not sufficiently sensitive for fashioning the finest sorts of Indian filigree and that children alone are employed in the manipulation of such a spider web of wire. The elegant primitive form of ornament probably reached its limits for delicacy and design at a very archaic period." ("Report on Jewellery and Precious Stones in the French Exhibition of 1866.")

The method of filigree manufacture has been described by T. N. Mukharji :

"It is made in the same way as the jewellery and is of pure silver with one part of lead. It is then cast into bars or sticks by being run into moulds. The next process is to beat the silver into plates which are then drawn into wires. Patterns are then formed by taking the wires one by one and carefully arranging them on a sheet of mica on which they are fastened by a peculiar cement. Thus held the different parts are then united by soldering. The last process is that of cleaning and finishing which gives the Cuttack work such a delicate and snowy appearance."

Quite a large part of the filigree work is done by children, often no older than eight or ten, for their nimble fingers and good eye-sight alone will suffice for the exacting and delicate task. Before use, the silver wire with lead admixture is twisted on itself so that it appears like a minute rope. T. N. Mukharji's description of the process as given above can be further elaborated in the words of Sir George Watt :

"The frame of a leaf or petal having been made in silver, this is given to one of the boys who cuts the wire into certain required lengths. Each of these he seizes between the forefinger and the thumb and turns one end round in the form of a half roll. He then impinges the wire within the frame and adds one after another, until the interior is packed as full as it will

hold of rolled up wire. It is then passed on to the master silversmith, who sprinkles it with a soldering salt, places it on a piece of mica, and then holds it in the furnace until the packing of wire becomes soldered together and to the frame. The skill lies in not causing the solder to fuse over more than the desired points of attachment. Leaf by leaf and petal by petal being thus prepared, they are then welded together in the desired form."

A short note in *The Journal of Indian Art* (Vol. 1, 1886) gives the process of soldering as follows:

"A solution of borax and water is placed in a vessel over a fire and boiled till only finely powdered borax remains. Silver strips, having 3/16 to 5/16 of alloy (copper and zinc or tin) are then placed in a separate vessel and covered with the powdered borax. The silver flowers, etc., are steeped in a borax solution. The frame-work is then taken, the alloy silver strips are placed on those parts of the frame-work to which the silver flowers are to be attached, and the silver flowers are placed on the alloy silver strips. The frame-work with the strips and leaves in position is then heated over a small furnace and the soldering is completed. The finishing touches are put with pincers, wire nippers, etc."

Some of the tools of the filigree worker are :

Siari — Large pincers used for drawing wire through the steel draw-plate.

Pilas and *Patangir* — Pincers for the above purpose but smaller.

Kalam — Punch.

Katani — Wire nippers.

Salai — Engravers.

Charkhi — A wooden winder on which the wire is wound.

Balancha — Brush made of hog hair.

Meghnala — Mica plate over which the wires are arranged before soldering.

Tara gola nali — Cylinders made of wood round which the wires are wound.

Hatol — Fine iron needle over which the wires are wound and cut for making the tiny links of chains.

Jantri — Wire draw-plate made of steel.

The same kind of tools are used in all parts of the country wherever filigree work is done, but the terms differ according to the language spoken in the region.

Filigree work of high quality is also produced at Dacca, now in East Pakistan, the technique of its construction being similar to that of Cuttack.

Diamond-cut silver ornaments used to be, and are to a limited extent even today, a speciality of Lucknow. The jewellery pieces have facets cut on them like those on a diamond, which are next burnished so that when "in the form of stars, bear at a distance a strong resemblance to the flashing of a diamond" and are thus rather similar in appearance to the marcasite work of Europe though the latter is really quite different.

Delhi jewellery can best be summarised in the words of J. L. Kipling :

"The chief characteristics of the best Delhi jewellery are the purity of the gold and silver employed, the delicacy and minuteness of the workmanship, the taste and skill displayed in the combination of coloured stones, and the aptitude for the imitation of any kind of original on the part of the workman." And he continues :

"The miniature paintings of Delhi are frequently set in gold cable twist patterns as bracelets, necklets, and brooches. Small plaques of Pratabgarh enamel, a semi-translucent green incrusted with tiny gold-chased patterns of figures and animals, are also, with true and false avanturine, mounted in a similar way. The almost invariable feature of Delhi work is a thin shell of gold incrusted with better gold, or with stones of some kind, and afterwards filled with hard lac. The enamel work is often spoiled by being done on gold too thin to withstand without distortion the heat of the enamel fire."

It must be remembered, however, that the above was written sometime towards the close of the last century, but will still be of some use to collectors of antique jewellery.

From the north to the extreme south, to the State of Kerala where ancient modes of jewellery are coming back into favour, with all their solidity, heavy settings, and infinite variety of designs.

The *thali* or marriage necklace has already been mentioned. It is the symbol of sacred wifehood, and tied round the bride's neck by the bridegroom during the marriage ceremony. She wears it as long as her husband is alive. The children have two pieces of jewellery all their own : the *yelasu,* a tubular ornament in gold, about two inches in length, which is tied round the waist to ward off "the evil eye." The *kingini* is a chain of hollow beads made of gold and containing metallic grain-size pieces of metal that produce a soft tinkling as the child moves about. This also is supposed to guard the wearer from evil spirits.

The other ornaments may be summarised briefly :

Thirukkupoo : An ornament worn on top of the knotted hair to keep it on one side. This was the mode of wearing the hair in former times.

Nettippatam : A forehead ornament, suspended from the hair.

Thoda : A heavy stud for the ear, generally set with precious stones.

Mookkuthi : A stud for the nose, worn singly or in pairs.

Aranjan : An ornament for the waist made of silver or gold thread and worn under the clothes.

Odyan : A belt of gold worn over the clothes.

Thanivala : A hollow bangle of gold with tiny pieces of gold inside, producing a jingling sound on movement.

Kattikkappu : A bangle of solid gold.

Irattavala : A double bangle.

Thoivala : A bracelet for the upper arm, mostly used by men of the working classes.

Kadakam : A bracelet for the forearm, mostly used by men.

Pavithramotiram and *Roopamkothumothiram :* The former is the sacred ring ; the latter is a figure ring.

Padasaram, Kolusu, Chilampu, and *Thanda :* These are different kinds of anklets. The *kolusu* and the *padasaram* are flexible, while the *thanda* is solid ; the *chilampu* is hollow and contains tiny pieces of metal that produce a jingling sound.

The necklaces constitute the most important items of the jewellery of Kerala and are available in a wide variety of designs and types. Flower motifs characterise the *Poothai,* and serpent motifs the *nagapata.* A necklace that seems to be made up of decorated coins is called the *kasumala.* The *sarapolimala* is set with red and green stones.

"Indira" writes in an article in the *Hindu* : "In the *Mahalakshmimala,* images of the goddess of wealth and beauty are embossed on gold rounds, and in the *Dasavatharamala* and *Puranamala,* we come across images of the ten incarnations of Vishnu and scenes from the *puranas* respectively. The *Pulianmothiram* is designed on the pattern of the nail of the leopard and the *Arimpumala* of jasmine buds. The former has twenty-one appendages and is usually put on the neck of the male child when it is given a meal of rice for the first time. The *Palakkamotiram* which is a string of components resembling the seeds of the *pala* tree is the special ornament of Namboodhiri (Kerala Brahmin) girls before they come of age . . . The component parts of most of the neck ornaments mentioned above are strung together in threads of either gold or cotton."

The following traditional forms of the jewellery of India are those common in North India ; but ornaments of more or less the same kind, slightly modified in certain respects, are common throughout the country though they may be known by different names.

Ornaments for the Head

Boda — An ornament made of silver and silk and used for plaiting into the hair of children.

Mauli — A long chain composed of rows of pearls separated by gold studs. About eight inches in length, it hangs on one side of the head.

Phul — A smooth, hemispherical boss set with a gem and worn at the top of the head.

Sisphul, Choti-phul, or *Chanak* — A round boss worn on the hair over the forehead. It is generally cut and decorated in the imitation of a chrysanthemum.

Sur Mang — A chain with a pendant worn on the head.

Ornaments for the Forehead

Bindli — Tinsel ornament of a small size.

Barwata — Small star-like ornaments applied over the eyebrows.

Chand Bina — Moon-shaped pendant worn on the forehead.

Dauni or *Damni* — A plain or jewelled fringe-like ornament worn hanging over the forehead on either side of the face.

Guchohi Marwarid — A cluster of pearls worn on the forehead.

Jhumar — A tassel-like ornament worn on one side of the forehead only.

Kutbi — A variety of the *Dauni.*

Tawit — Amulets worn on the forehead and always of a small size.

Tika or *Kashka* — A small ornament for the forehead.

Ornaments for the Ears

Bali or *Goshwara* — Set of rings worn round the outer edge of the ear.

Bala Khungridar — A heavy ear-ring with a fringe.

Bali Bahaduri — An ornament with a conical stud in the centre.

Karanphul and *Jhumka* — A bell-shaped ornament fringed with pearls or metal suspended from the ear by a flower-shaped stud.

Kan — An ornament fashioned in the shape of the ear itself with rings attached and covers the ear when worn.

Machh Machhlian — A ear-ring in the form of a fish, often set with jewels.

Mor Phunwar — A jewelled pendant in the form of a peacock hung from the ear.

Tid or *Patang* — A jewelled pendant in the form of a locust and from the crescented lower edge of which hang a row of pipal leaves in gold.

Tandaur, Dedi — Star-shaped jewelled stud of a large size.

Ornaments for the Nose

Nath — A large nose-ring held up by a chain attached to the hair by a hook to relieve the strain on the nose. It is set with jewels and pearl and gold ornaments hang from one side.

Bulak — A small pendant either attached to the *nath* or to the cartilege of the nose.

Laung — A small stud set with a pearl or turquoise.

Latkan — Pendant which hangs from the *nath.*

(*Note :* Nose ornaments are not very popular today and were probably not commonly worn in ancient times as they are not mentioned in classical literature.)

Ornaments for the Teeth

Rekhan — Silver and gold studs fixed into the centres of the front teeth.

Ornaments for the Neck

Chandan har — A necklace consisting of a large number of chains.

Champakali — A necklace bearing pendants in the shape of buds of the champa flower. They may be set with stones.

Galaband — A gold collar which may be plain or jewelled.
Haul-dil — An amulet of jade cut in curves round the edges.
Hansli — Silver or gold collar, wide in the middle and narrowing towards the two ends ; it is sometimes set with gems.
Itrdan — A gold pendant, either plain or jewelled, bearing a cavity which may be filled with perfume, generally square in shape.
Jugnu — A jewelled pendant hanging from a chain.
Kandi — A chain of silk for amulet cases.
Mala or *Har* — A long necklace of pearls or gold beads.
Mohran — A gold coin hanging from a silk thread.
Mohan Mala — A long necklace comprising large gold beads all held together by a twisted gold thread.
Panch-lari — Necklace consisting of five strings of pearls or small gold beads.
Sat-lari — Necklace consisting of seven strings of pearls or beads.
Silwatta — An amulet case in the shape of a small pillow, with two rings for suspension.

Ornaments for the Upper Arm

Bazuband — A broad armlet for the upper arm.
Anant — A thin silver or gold ring of a large size.
Bhawatta — A square ornament of gold worn on the upper arm.
Jaushan — An armlet made up of a number of drum-shaped beads strung together.
Nav Ratna — An ornament of nine gems joined with silk threads.
Tawiz — An armlet for the upper arm.

Ornaments for the Wrists

Banka — Thick bracelets of gold, worn by Hindus.
Gokhru — A bracelet with serrated edges.
Gajra — A flexible bracelet made of square gold studs, mounted on a silk band.
Kara — A golden round bracelet, enamelled or set with stones. Often the heads of alligators, tigers and other animals are engraved at either end.
Kangan — A bracelet of silver or gold or some inferior metal.
Ponchian Kutbi — A bracelet of silver or gold beads shaped like the grains of cardamoms.
Ratan Chur — A decorated gold plate worn on the back of the hand and attached to the five fingers by gold rings strung on it.

Ornaments for the Fingers (Rings)

Angushtri — A ring set with stones. It is also known as *anguthi* or *mundri.*
Arsi — A ring for the thumb and set with a small mirror. It opens to reveal a small cavity containing *sindur* (a red powder used in worship).
Chhalla — A plain hoop-like ring, plain or set with stones. It may also be worn on the toes.

Ornaments for the Waist

Kardhani — A girdle made of silver or gold and consisting of a number of chains held together by bands.

Ornaments for the Ankles

Chanja — A large hollow ring.
Ghungru — A ring made of long silver ornamental beads.
Pahzeb — A common name for different types of ankle ornaments made up of chains and small belts which clink together when the wearer walks.
Zanjiri —A set of chains with a clasp called the *tora.*

In the days gone by, the use of personal adornments was not always a monopoly of the fair sex. Men also wore jewellery of many kinds, though the practice has almost died out now, the last in Northern India. In his *Panjab Manufactures,* B. H. Baden Powell has described the following ornaments that used to be worn by men as late as the last century.

Head Ornaments

Jighan ; Sarpech — A jewelled aigrette worn on the front of the turban.
Kut-biladar — An oval-shaped pendant for the forehead.
Kalgi — A jewelled plume.
Turah-i-marwarid — Pearl tassels for the turban.
Mukut — A jewelled head-dress worn by Hindus at weddings.

Ear Ornaments

Bala — Thin but large rings, made of a pearl or two strung on gold wire.
Murki — Smaller ear-ring of round shape.
Zanjiri — A chain used with the *bala* to keep it up.
Dur — A small ear-ring of three gold studs on one side.
Birbali — A wide ear-ring with three studs.
Duricha — An ear-ring with a pendant tassel.

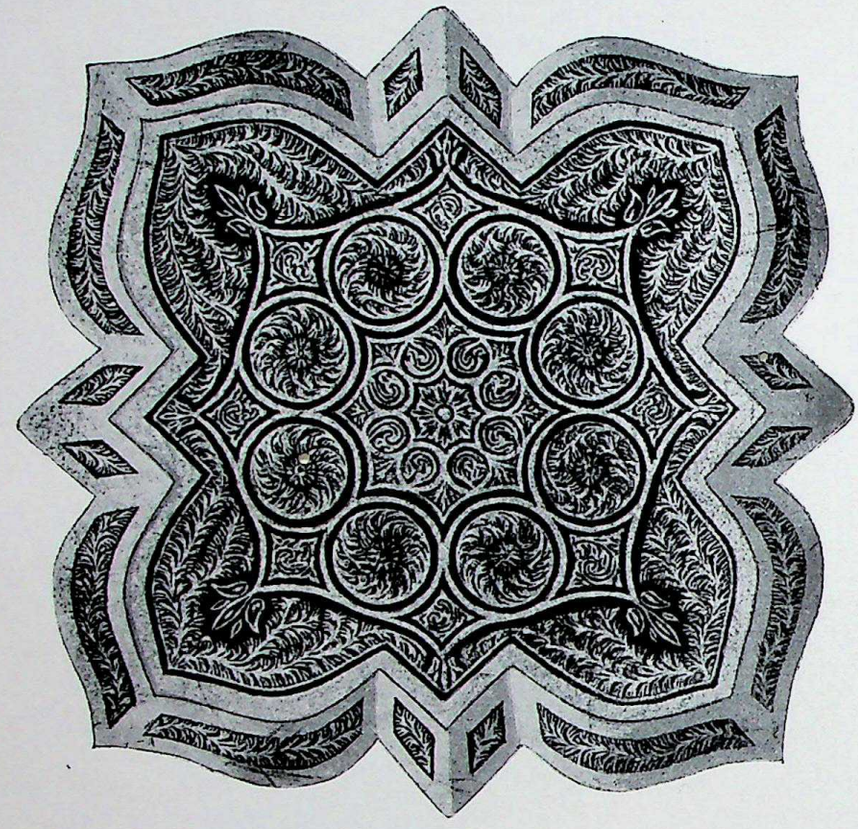
Neck Ornaments

Mala — Necklace of large beads, loose and long.
Kanthi ; *Kanth* — Necklace fitting close to the neck, with or without a pendant. It may be worn by women as well.
Nam — Amulet, round or star-shaped, suspended from the neck by coloured silk thread.
Tawiz — Square amulet, jewelled or plain.
Takhti — Flat square plate engraved with figures, etc.
Hainkal — Chain of twisted silk, from which hang small amulets, coins, gold loops, etc., all round.
Chandrama — Large gold flat medal suspended on a silk cord by a single ring.

A beautiful silver *surahi* enamelled in black, from Lucknow.

A hukka bowl in bidri work. A very attractive example of the craft.

(From *The Journal of Indian Art and Industry*)



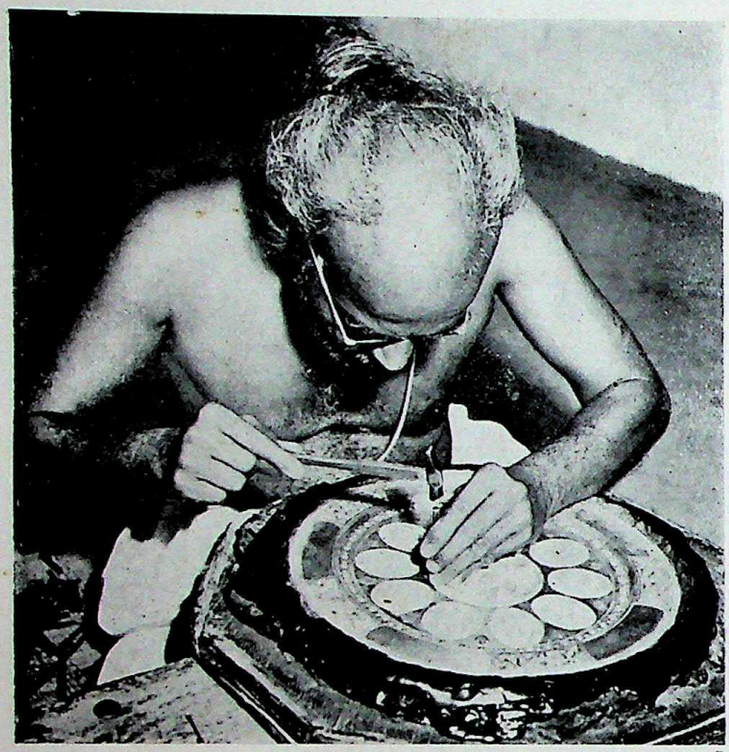
A tray in damascene work, from Sialkot.
(From *The Journal of Indian Art and Industry*)

A bidri ware flask from Purnea in Bihar.

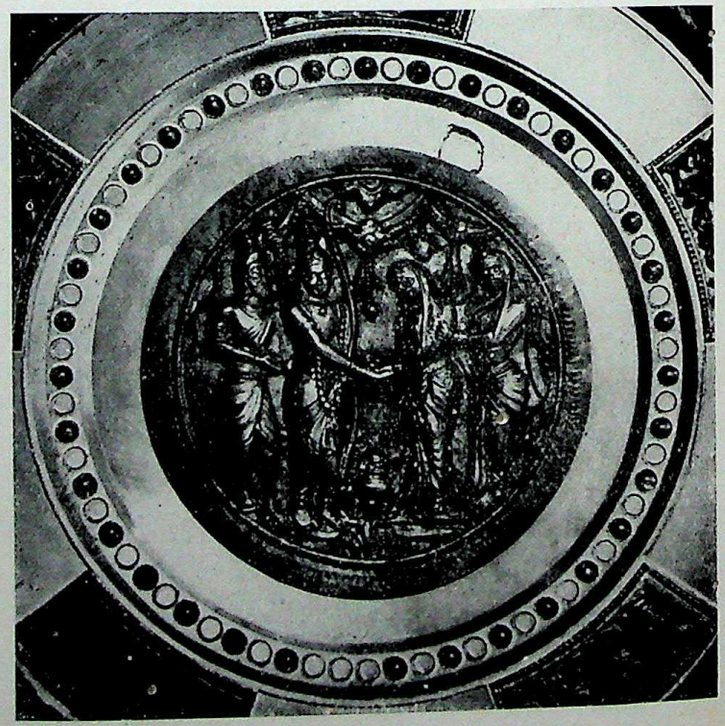
Two hukka bowls and a Muslim type of *surahi* in bidri work, from Hyderabad.
(*Photos : A. S. Vaswani*)

Chased and embossed pure silver Kutch work, *From left to right :* A visiting-card case, small covered bowl, flower vase, parasol handle, wine glass, another card case.

(From *The Journal of Indian Art and Industry*)



Left : Silversmith of Tanjore at Swami Work. *Right :* A Swami Work round salver with a Tanjore temple as its central motif.



Left : Swami Work round salver with Siva motif. *Right :* The central motif of a Swami Work round tray depicting the marriage of Siva and Parvati.

(Photos : E. S. Mahalingam)

Bracelets

Ponchi — Bracelet for the wrist, consisting of a series of strings of shells or small gold beads of an elongated shape.

Kangan ; Kara ; Gokhru — Bracelet of stiff metal, worn round the arm ; it is called *gokhru* when the edges are serrated.

Some of the places in modern India well-known for fine jewellery are Lucknow, Jaipur, Savantwadi, and Mysore, the last two producing perhaps the best examples of jewellery in the purely Hindu style, possessing high artistic value and "never even in their excessive elaboration of detail violating the fundamental principles of ornamental design, nor failing to please."

The modern trends in Indian jewellery have been well summarised by Jamila Brij Bhushan in her profusely illustrated book, *Indian Jewellery, Ornaments and Decorative Designs*. The craft of the jeweller has adapted itself to new patterns and modern taste. With the facility of communication and travel, the restriction of designs to their places of origin has disappeared. The jewellery of the south has permeated the north, and the northern patterns have reached southwards, and the designs and fashions have become more or less uniform throughout the country, except for the very traditional forms.

The use of harder alloyed gold, more suitable for fashioning the modern designs, has become common and the carat system of marking gold alloys has been imported from the West. Platinum has also been in use for some time, the white lustre of this expensive metal better setting off the brilliance of certain stones like the diamond. From the West also came the idea of polishing gold ornaments to a high lustre, something which was not considered necessary in previous years and not quite possible to achieve due to the softer gold used in former times. Alloying and the use of gold of less purity has now made this possible and polished ornaments first came into popularity in Bengal and later spread to other parts of the country.

Another change noticeable is the use of the "open claw" mode of setting of stones in preference to the old *kundan*. Besides, uncut gems so much in vogue in early ages has fallen into disuse and facetted and cut stones, especially rose-cut, have become the fashion, although uncut stones are again becoming popular nowadays. At the present time, the trend is once again to revert to the old designs, although how much they suit the modern woman is doubtful. Yet, "Few ornaments worn nowadays are what they seem. Old armlets are worn as bracelets or even necklaces. A *tika* or forehead ornament may be worn as a pendant while an old turban ornament or *sarpesh* may be converted into a necklace."

Bombay, the Gateway of India, naturally leads today in the quality of the jewellery produced. Bombay jewellers execute pieces both in the ancient and modern styles and the large establishments employ expert designers and skilled craftsmen to meet the exacting demands of a cosmopolitan population, for here in Bombay, the East and the West meet as nowhere else in India. While this city leads in the execution of modern designs, Delhi, Jaipur and Lucknow, ancient sites of Muslim culture, still excel in the older forms of jewellery, and their imitation of these is unsurpassed anywhere else.

The finest filigree work continues to be produced in Cuttack, both in silver and gold. But "although it is incomparable in beauty and delicacy it does not conform to modern tastes and so is not considered modish." Today, the old and the new exist side by side with a trend towards the old at the moment. How long this will continue is doubtful for it cannot be denied that the ancient settings are definitely unsuited to modern conditions and yet Western designs are not always appropriate.

In India, jewellery is not worn because of its intrinsic value alone ; but because it is beautiful, because it serves to satisfy the aesthetic needs of the poor and the rich alike — the former by the simple ornaments of silver ; the latter by the dazzling masterpieces in purest gold that the Indian craftsman is capable of turning out.

Whatever happens, the love of personal finery will never disappear from the heart of the Indian woman, so deeply it is embedded in her very soul :

"With the tinkling jewelled anklets,
With the flashing, jingling necklace,
With the show of girdles garrulous
From their ringing, ringing bells,
With the sound of lovely jingles
From the rows of rolling bangles —
(Pray) whose heart is not bewildered
While the moon-faced maiden swings?"

— *Kapur-Manjari* (Camphor-Cluster) of Rajacekhara, c.900 A.D., Lanman translation.

INDIAN METAL CRAFTS IN GOLD AND SILVER

The craftsmen of India have always shown an exceptional skill in engraving, chasing and ornamenting of gold and silver articles of everyday and decorative use. Perhaps the earliest surviving examples of such work in precious metals, probably dating to about fifty years before Christ, are a silver patera and a gold casket discovered by Mason at the beginning of the last century at the site of a Buddhist excavation near Jalalabad. These are fine specimens of ancient metal-craft, the casket being of beaten repoussé work and engraved with figures of gods and birds. It was found to be filled with burnt pearls and sapphire, agate, crystal and coral beads. The upper and lower edges are studded with rubies, alternating with raised curly ornamentation ; the whole circumference of the casket is divided into eight niches, enshrining four figures, each represented twice. Between the arched niches, there are figures of birds with outspread wings. The whole casket has a typically Byzantine appearance, but is certainly of Indian craftsmanship, perhaps influenced by the invasion of Greek thought and culture. The Indian origin is confirmed by the representation of the sacred lotus in a conventionlised form at the bottom of the casket.

The art of working in gold and silver was probably even more ancient as in the *Rig Veda* there is a mention of gold cups ; and both the great Epics, the *Mahabharata* and the *Ramayana,* allude to the common and universal use of richly decorated vessels by the wealthy and these were probably of precious metals. Although the only mention in the *Rig Veda* is to gold goblets, jewellery is mentioned so often that it must be presumed that precious metals must have been used extensively in those early days even for articles of common use. But it was only under the Mughal rulers that this art-craft received its highest encouragement and perhaps reached its zenith.

Dr. Rajendra Lala Mitra has pointed out : "In a mediaeval work, the *Kalika Purana,* plates of gold are described to remove excesses of three humours, and promote the strength of the vision ; those of silver, favourable and inimical to bile, but calculated to increase the secretion of wind and phlegm ; those of bronze, agreeable and intellectual, but favourable to undue excitement of blood and bile ; those of brass, wind-generating, irritating, hot, and heat and phlegm destroying ; those of magnetic iron, most beneficial in overcoming anasarca,* jaundice and anaemia ; those of other stones or clay are inauspicious, those of wood wholesome, invigorating, and poison-destroying."

The finest gold and silver work originates in Kashmir and the Punjab — long the traditional centres of this craft. Kashmir especially is well-known for its parcel gilt work, generally restricted to the production of *surahis* or water-vessels, their shapes and symmetry borrowed from the clay vessels used by the common folk throughout the Punjab. The art consists in heavy gold plating of the silver goblet, the design then being engraved through the gilt to expose the silver underneath and form exquisite designs in silvery white. Sir George Birdwood describes them enthusiastically : "Their elegant shapes and delicate tracery, graven through the gilding to the dead white silver below, which softens the lustre of the gold to a pearly radiance, gives a most charming effect to this refined and graceful work." Unfortunately, no amount of words could possibly express the beauty of this art-craft — it has to be seen to be really appreciated.

In Kashmir silver-work, occasionally the ground is of silver, and the ornament consisting of sprigs of leaves in parcel gilt. This is known as the *Ganga-Jamuna* work, universally popular with Indian craftsmen. T. N. Mukharji tells us : "It got its name from the two rivers Ganga (Ganges) and Jamuna (Jamna), which between them enclose a track of land in Upper India known by the name of Doab or 'Two-Waters.' The colour of the waters that the Ganges carries down to the sea is described in the books as white, while those of its tributary the Jumna deep blue. Hence when on the same article patterns of two colours meet or run side by side, the vessel is described to be of *Ganga-Jamuna* pattern."

Apart from *surahis,* cups, trays, tea-sets, bowls, and vases, all with lovely diffused floral designs, are made in parcel gilt. Another peculiarity of the Kashmir arts in precious metals is the occasional use of "rudy gold". Generally, all over India, the gold used is of a deep yellow colour, though the Sind goldsmiths used to, and sometimes still do now and then, impart a singularly lovely olive-brown shade to their gold.

Kashmir is also noted for its silver plate with very fine and intricate repoussé work in flat relief. The common designs are the very beautiful shawl pattern, the Arabesque, mostly used on parcel gilt work, the Rosette style, Chunar Tree pattern, and the Lhassa style of work in which the handles and spouts of vessels take the form of large dragons.

Gold and silver wares are still made in many other places, like Bangalore, Gujarat, Lucknow, Jaipur, and Tanjore. The gold repoussé work of Gujarat has a beauty all its own and is much in demand. Bowls and trays, sprinklers for rose water, and other articles of daily use are made by the craftsmen of Coconada and Tiruchirapalli (Trichinopoly), whose art

* A dropsical affection.

lies in the artistic hammering out of the precious metal to form flowers and leaves in relief on the objects to be decorated.

The *surahis* made of silver at Lucknow are also famous and resemble those of Kashmir to a great extent. This centre was once famous for its vessels made of mixed gold and silver, an art that has steadily declined. The articles made at Dacca in East Bengal are also of excellent workmanship and show the introduction of original designs. Gujarat is another place renowned for its work in gold and silver, all vessels made bearing a definite Hindu touch. Even today this craft is extant here, still showing the influence of traditional designs and methods. The repoussé work of Kutch is rightly renowned ; one of the famous goldsmith of old was Umersi Manji who in his lifetime produced many beautiful masterpieces in gold and silver. Madras also is well-known for this art, especially for pierced and hammered silver wares — superb examples of manual dexterity and skilled craftsmanship.

The encrusted Swami work of the south is justly famous. It has been described as consisting of "mythological medallions and canopied niches in imitation of the encrusted and agglutinated style of work which is characteristic of all South Indian art." The ornamentation mostly consists of figures of Puranic gods in high relief. These figure ornaments are either beaten out from the metal surface of the article itself, a kind of repoussé, or they are separately made and skilfully soldered or riveted onto the metal article.

The best Swami work is that of Tanjore where the mythological figures encrusted are in high relief and in white metal on the reddish copper ground of the article, an effect that is striking and bold. Regarding this work and the other metal crafts of Tanjore, Dr. G. Bidie has written :

"Ornamental work in copper and silver, brass and silver, and brass and copper is made at Tanjore. It is of three kinds, namely, brass graved, brass encrusted with copper and copper encrusted with silver. Sometimes the brass and copper variety has also figures in tin introduced. In the graved brass-work the first rude impressions are made with a die, and by hammering. The work is then completed by cutting away the brass in the space between the figures, and giving it a granulated appearance with a graver. Finishing touches are also given to the figures . . . Examined closely the figures are seen to be coarsely fiinished, but the general effect at a little distance is excellent. In the copper and brass ware the vessels are made of brass and covered with figures of copper, which are fixed on the base metal by hammering and a sort of dovetail union. After the copper crusts are put on and worked into shape, the figures are finished by the graver and a chisel . . . The encrusting of copper ware with silver figures is a modern adaptation of the older art of covering brass with copper figures, and the silver is attached to the copper or brass . . . The designs consist, as usual, of mythological figures and floral decorations, which, although in some cases rather crowded, have yet an excellent general effect."

Many authorities feel that the brass harmonises better with the copper than the bright silver ornamentation so much in vogue today. That is however a matter of taste.

Repoussé work is not unknown in other parts of the country. For example, in Kutch the repoussé ornamentation is much shallower than that of the south, yet really raised fairly high. The work generally consists of an intricate and beautiful floral design, peculiarly of local origin. To quote B. H. Baden Powell : "The decoration is, perhaps, somewhat wanting in variety, but it is very rich in general appearance . . . The Cutch work is repoussé, the flowers, foliage and stems being somewhat highly raised and delicately and sharply defined. Good work is at once known by the sharp and clear cut, and good modelling of the forms, as well as by the grace of the curves. In general, the effect is of white frosted silver, with only the higher surfaces bright, and the rims and bases burnished. The tendency of the workmen is to a fault common to all the decorators of this class — namely, to cover too much of the surface uniformly all over with the branching work, leaving no bands or margins of plain metal to contrast with and set off the repoussé pattern."

Bar silver is used in Kutch. As in most parts of India, the repoussé work is done from the outside, that is, the ground is punched in, unlike the European silversmith who raises the pattern from the back of the metal. Before the background is depressed to raise the design, the vessel is filled with *kil,* a slightly elastic medium of wax and resin. After the major part of the work has been carried out, the vessel is emptied, cleaned and heated, refilled, and the final work done. The *kil* is then again melted and removed and the vessel burnished and frosted. The background is punched in with the aid of steel tools with blunt ends to produce the design in repoussé. The final frosting is done by heating the article and then dipping it in a weak solution of nitric acid in water, and then finished by polishing with a corundum-like powder called *sangbari-reti.* The parts to appear bright and shiny are polished with needles and beads made of steel.

Poona prefers a much bolder form of raised repoussé ornamentation, while Baroda work strikes a completely different note. Here, the article is made of richly carved wood. The thin silver, or sometimes copper, plate is laid on the carved wooden panel and gently and skilfully hammered till the metal takes the shape of the wood carving.

In Calcutta, we find a still different style. The designs generally consist of hunting and jungle scenes and rural landscapes that are worked up on a frosted silver surface, producing a sober yet rich effect. This type of work has become fairly popular and is now being imitated in other parts of the country.

In the south, chased or repoussé decoration is carried out on silver. Before the repoussé work is done the article is filled with a composition consisting

of gum sandarch, brick dust and oil, heated to melt it. On cooling, it has all the hardness of sealing wax. The surface of the vessel is then smeared with chalk mixed with water and the design carefully drawn on it with a sharp stylus. The ornament is raised above the surface by beating down the ground between the figures or design with steel tools and a hammer. When the ornament has been roughly embossed, the composition is again heated and poured out, the irregularities and unwanted depressions worked out and the composition once again poured in. The finer details are now added with the use of smaller and finer tools.

In the case of flat articles like trays, etc., the design is embossed in high relief by working from the reverse, the article being placed on a bed of the wax-like composition described above, a process more analogous to European practice.

The art of damascening or "Koftgari" work had its home in ancient Damascus, from where it must have travelled to India, probably through Iran and Afghanistan. This is the art-craft of encrusting one metal into another in the form of wire, to produce a most harmonious and beautiful effect. The two metals, the base of steel, iron or bronze and the ornamental design in gold wire, though sometimes in silver, form an integral whole, so skilfully are the two metals incorporated and harmonised. The art of damascening apparently arose with the desire of the soldiers of old to possess weapons of war that were decorative and ornamental as well as functional. And the craftsmen of those days must have been kept very busy damascening swords and daggers, shields and sheaths. It is well known that Emperor Akbar was fascinated by this art and himself supervised the work in his Royal Armoury. Now, with the passing of time, the need for damascened weapons of war has completely disappeared and the skill of the craftsmen is devoted to ornamenting boxes, *surahis,* flower vases, salvers, knives, scissors, betel-nut cutters, hukka bases and such other articles of daily use.

The chief centres of damascened work in India are Jaipur, Alwar, Sialkot, Travancore, Kashmir and Bidar. Jaipur and Alwar, renowned for their skilled artisans, still produce damascened swords, daggers, elephant goads and even shields to a very limited extent and mostly for ceremonial purposes. Muslim craftsmen show an admirable skill and pride in the laying of wire to form verses from the Koran, verses of poetry and prayers to bring good fortune. In Travancore, the damascened designs are chiefly floral and suggestive of Dravidian influence, the work consisting of fine gold wire beaten into a background of steel on which the pattern is first engraved and undercut.

B. H. Baden Powell has thus described the art-craft of damascening as obtaining in this country :

"*Koftgari* is done by first drawing out the pattern on the steel surface with a hard steel needle or *silai*. This leaves a line sufficiently deep to catch the very fine wire laid on. The wire is of pure gold, drawn through a steel *jandri*. The wire is then hammered into the iron according to the pattern and lines already drawn, the whole is then heated and again hammered, and the surface is polished with a white porous stone ; where the soft gold is required to be spread, the rubbing and hammering are repeated with greater force. The gold used is pure and very soft."

The styles of damascening differ in different parts of the country and this is especially to be noticed in old arms :

True *Koftgari* or *Teh-Nishan* : The steel is engraved very deeply and thick silver or gold wires hammered into the chasing while the metal is still hot. This is next filed down, cleaned and blued until it presents a smooth polished surface. The surface is blued by the action of heat only and no chemicals are used.

Ganga-Jamuna : This is like the above but gold and silver wires are used in the same design, the gold often alloyed with a little copper to give it a pinkish tinge.

Shallow Koftgari : The chasing is shallow having been made with files and the wire is embedded in this shallow chasing. As only very thin gold or silver wires can be laid in the extremely shallow grooves, the surface cannot be polished to any great extent.

Imitation *Koftgari* or *Dewali* Work : The base metal is carefully smoothed with pumice and the pattern is then scratched on it with a stylus. It is then heated and gold leaf applied to it. The latter is now gently hammered and then carefully rubbed with a special kind of stone. This makes the gold to stick to the areas of the design scratched on the surface of the base metal, but is removed from the smooth parts.

Allied to true damascening are the similar encrusted work crafts in which the base metal is rarely if ever steel and the inlaid or incrusted metal rarely in the form of wire. Of these there are two basic forms : one with the applied metal raised above the surface of the base material, as seen in Tanjore ware, and the other in which the applied metal is level with or slightly below the surface as in bidri work.

In Tanjore ware, the metal which may be silver or even brass is repousséd by working it over a bed of lac. This is then laid on the surface of the base metal upon which it is to be joined, its outlines scratched on the latter, and then deeply chased so that the grooved outlines can receive the edge of the applied ornament. The latter is secured to the base metal by hammering the rim of the design outlines in the ground metal, produced by the deep etching, over the edges of the applied ornament.

A different style of work is Bidri ware, which may be called "damascening" in silver. The art takes its name from Bidar whose Muslim craftsmen have always been famous for this work. Bidar stands about seventy-five miles from Hyderabad in the Deccan and in ancient times was the seat of the Hindu kingdom of the same name. After its conquest by Mohammedan invaders, it continued to be the seat of government of the Bahmani dynasty of Muslim rulers. It is

Left : Example of Nepalese fretted metal-work.

Right : Base metal censer from Nepal.

(From *The Journal of Indian Art and Industry*)

Copper dish inlaid in relief with silver, representing Rama, Sita, and Lakshmana. 19th. Century.

(By Courtesy of Museum of Anthropology and Ethnography, U.S.S.R. Academy of Science)

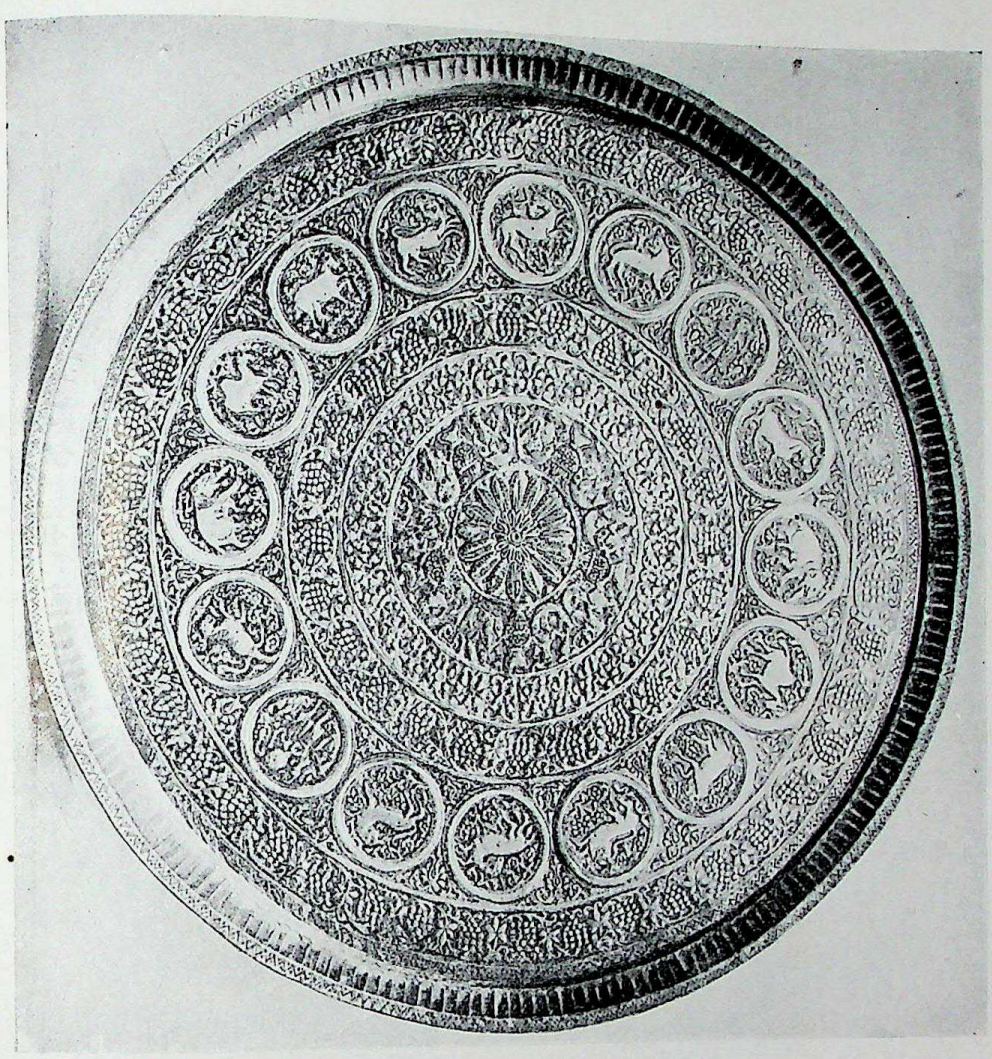
Chased copper tray with scenes from the legends of Shri Krishna. 19th Century.

(By Courtesy of State Museum of Oriental Culture, U.S.S.R.)

Beautiful metal articles in repoussé work from Jaipur.
(From *The Journal of Indian Art and Industry*)

A group of enamelled and jewelled ware exhibited at the International Exhibition of 1862. Among the articles are a fine enamelled and jewelled *ankus* (elephant goad) and a bracelet of the same description, as well as beautiful specimens of jewelled and inlaid jade. The penbox with red and green sprig ornament resembles, in the style of decoration, the fine stone mosaic work of Agra and Delhi.

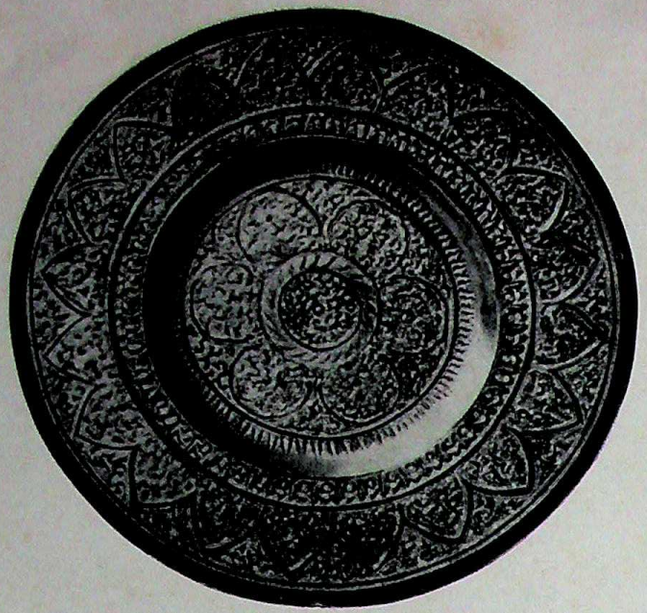
(From *Masterpieces of Industrial Art and Sculpture* by J. B. Waring)



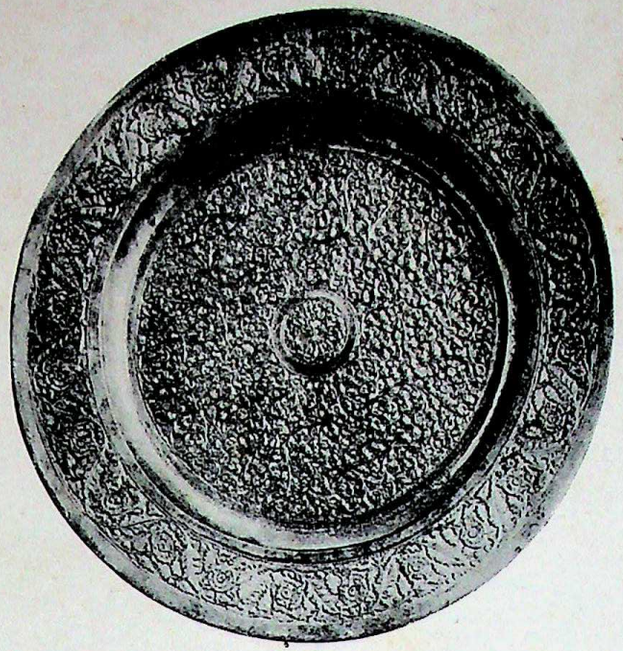
Repoussé brass salver from Lucknow. In the centre row there are 16 medallions in which are represented twice over in the same order — a man, a horse, an elephant, a camel, an ass, a lion, a deer and a tiger.

Brass tray in repoussé work, from Baroda.

(From *The Journal of Indian Art and Industry*)



Embossed brass salvers from
Bombay State.



Beautiful brass vessels and covered jar from Tanjore, rather reminiscent of Swami Work.
(From *The Journal of Indian Art and Industry*)

commonly believed that one of the Hindu kings of Bidar invented the craft of bidri-ware, using the articles thus decorated to hold flowers and other offerings in honour of his household gods. In any case, it cannot be disputed that the quality of bidri-ware improved and reached its zenith under the patronage of the Mohammedan sovereigns who fostered the craft and encouraged and supported the local artisans.

The articles commonly made are ash-trays, salvers, hukka bowls, spittoons, known as *pikdans, pandans,* cups, plates, tumblers, flowers vases, *surahis,* plates, boxes, etc.

The alloy used apparently varied from place to place as different writers have given varying formulas :

Captain Newbold : 1 part of copper, 16 parts of zinc. This alloy was apparently common in Bidar.

Dr. Smith : 1 part of copper, 4 parts of zinc. In Purniah, the proportions of the two metals were 9 parts of copper to 176 parts of zinc.

Dr. Buchanan Hamilton : Zinc 13,360 grains, copper 460 grains, and lead 414 grains.

Dr. Heyne : 16 ozs. of copper, 4 ozs. of lead, 2 ozs. of tin, all melted together and then 16 ozs. of zinc added to every 3 ozs. of alloy and remelted.

Lead does not seem to be used at present, though tin is. At Lucknow, steel powder was also added to produce a stronger alloy, the proportions being, copper 4 ozs., steel powder 4 ozs., and zinc 12 ozs. Thus, it seems that there was no fixed alloy for the making of bidri-ware but differed from place to place and probably with different craftsmen.

A solution of chemicals, copper sulphate, salammoniac, common salt and salpetre, is applied to the surface of the vessel to be decorated, the chemical turning the metal jet black in colour. The design is next engraved on the blackened surface with a steel engraver and the pattern carefully grooved with fine chisels and the precise use of delicate hammers. Into these deep lines of the design the fine silver wire is hammered to form an integral whole. The last stage consists in polishing so that the shimmering silver design stands out from the satiny black surface.

Bidri work is of two kinds : the *Teh-Nishan* in which the design is deeply cut, and the *Zar Nishan* or *Zar Buland* which rather resembles the encrusted ware of Tanjore. For the latter type of work, which is certainly inferior, the design is first engraved, silver leaf placed on it and rubbed with the finger so that the lines of the design are transferred onto the thin silver foil. This is next cut out into the desired shapes, the edges of each bent over and the depression thus formed filled with soft lead. Inverted, the pieces are next pressed into the engraved outlines and areas of the design and gently hammered and punched all round till the applied decoration is fixed to the base metal.

T. N. Mukharji explains this process slightly differently :

"Thin plates of gold or silver are laid on a bed of wax and resin, which prevents their moving about, and serves as a glue when pressed on the ground work. A small piece of paper is next inserted into the cavities, made on the surface of the vessel, to take an impression of the excavated pattern. It is taken out and placed on the gold or silver leaf, which is cut into the exact measure thus obtained, and the piece then taken up by the top of the finger and the chisel, placed on its corresponding cavity, into which it is firmly inserted by a steel point, and gently hammered in." And he continues :

"Very thin leaf is used for the ordinary kinds, while in the more durable workmanship, gold or silver wire is employed." Mr. Mukharji also gives different methods of producing the characteristic black colour of bidri-ware. He writes :

"This operation is performed at Bidar by the application of a paste made of salammoniac and saltpetre, ground up with brakish water. At Purniah, the mixture is composed of four parts of salammoniac, one of unrefined nitre, and five of rough saltpetre freshly collected, the whole being moistened with rape-seed oil, to which a little powdered charcoal is added, while at Murshidabad the composition used consists of saltpetre, salammoniac, blue vitriol and nitrate of potash, finely powdered and mixed with water." (*Journal of Indian Art*, Vol. 1, 1896.) The article is first heated slightly before the chemical paste is applied. The latter is allowed to remain on the metal for some hours and when dry, is washed off and the article cleaned with oil.

Bidri-ware holds special importance in the Hyderabad region, due to the custom of presenting a complete set of Bidri-ware utensils, etc., to the bridegroom on the occasion of marriage. "No dowry is considered complete, among the better class of Mohammedans unless a complete set of the Bidri-wares from bed-legs to a spittoon is included. The high prices often render it necessary for the father of a family to begin his collection before his daughter is marriageable."

Bidri-ware is also turned out at Lucknow, Purniah and Mushidabad, to name a few other important sites besides Bidri. Everywhere the craft is in the hands of Mohammedan artisans. In Lucknow, the large designs in silver, in the form of flowers, leaves, and even fish, are encrusted all over the base metal. In Tiruchirapally (Trichinopoly), vessels and other articles made of brass are encrusted on the surface with zinc, producing a rather curious but displeasing effect.

At Purniah in Bengal, the alloy used is copper mixed with zinc. While the Bidar craftsmanship shows a preponderance of floral decorations in a more or less naturalistic style, the design of the Purniah region is strictly conventional. Occasionally, examples from this part of the country carry decorations that are definitely Chinese in character — the Chinese influence

on the art evidently having reached the place through Sikkim and Bhutan.

Two kinds of bidri-work used to be produced in Purniah during the closing years of the last century. The better type was the *gharki* in which the designs were deeply cut and the articles very well finished. The other, *karna-bidri,* showed much simpler patterns and the vessels were rather inferior in finish.

Another modification of bidri-work is to be seen in Lucknow's *zar buland* work in which the patterns are slightly raised above the surface and are not level with the surface as usual in bidri-work. According to T. N. Mukharji, this was "an imitation of the many kinds of copper and brass ware, specially those of Tanjore in South India, in which the white silver designs stand in relief on the red or yellow ground of the copper or brass vessels." The method of producing *zar bunland* ware is more or less the same as ordinary bidri-work, except that instead of excavating the designs for setting in of the silver or gold, the designs are raised above the surface and chased. Unfortunately, often gilt silver is used in this kind of work instead of pure gold.

The fame of bidri-ware having travelled abroad, a host of modern articles are produced today for sale to tourists. They consist of boxes of all kinds, book ends, tea pots, cigarette cases, ash trays, fruit dishes, cake stands, cruet sets, etc.

Niello work is not much in favour with Indian craftsmen, certainly not as popular as elsewhere. The method of niello ornamentation is not very intricate. The object is first engraved with the chosen design, generally a scroll or floral, and into the engraved lines is poured an alloy of copper, silver and a small amount of lead. The article is next heated in a strong fire and rubbed over with borax, perhaps to prevent oxidation. After the borax treatment, it is further treated in the fire for a short time, withdrawn and allowed to cool. It is finally burnished to a beautiful bright lustre. Though the craft seems to have disappeared from the soil of India — probably it never was indigenous — it is still practised in some parts of Burma.

Minakari work or the art of enamelling on metals — gold, silver, and even brass — was perhaps known even in ancient India, and was certainly widely practised throughout the country in medieval times. Today, the art flourishes in Alwar, Banaras*, Delhi, Lucknow, and Kashmir, while Jaipur is most famous for its beautiful enamelled jewellery. Here, at Jaipur, "the colours employed rival the tints of the rainbow in purity and brilliance, and they are laid on the gold with such exquisite taste that there is never a want of harmony." No wonder it is said that the craftsmen of Jaipur "could enamel rainbow tints on gold."

The champlevé method of enamelling is used in India. The metal is engraved or chased so as to provide the necessary depressions in which the enamel colours are applied and fired. The engraving tools used are made of steel and the article to be enamelled is first burnished to a fine lustre. The colours are applied in order of their fusibility, those requiring the greatest heat being used first. After each colour has been embedded in the engraved lines or areas, the article is fired. When all the colours have thus been applied and fired, the article is finally polished with corundum and cleaned in strong fruit acid.

Colonel T. H. Hendley, who made a deep study of Indian jewellery, tells us that the engraving for the enamelling is done with steel styles, and the polishing with steel and agate tools. "The surface of the pits in the gold is ornamented with hatchings, which serve not only to make the enamel adhere firmly, but to increase the play of light and shade through the transparent colours. The enameller or *minakar* now applies the colours in the order of their hardness, or power of resisting fire, beginning with the hardest. Before the enamel is applied, the surface of the ornament is carefully burnished and cleansed. The colours are obtained in opaque vitreous masses . . ."

He has also recorded : "The design is prepared by the *Chitera,* or artist, generally a servant of the master jeweller . . . The *Sonar,* or goldsmith, then forms the article to be enamelled, and afterwards passes it on to the *Gharai,* the chaser or engraver, who engraves the pattern . . . The enameller or *Minakar* now applies the colours in the order of their hardness, or power of resisting fire, beginning with the hardest." The order of hardness and of application is given as white, blue, green, black, and red.

According to Colonel Hendley, "All colours known can be applied to gold. Black, green, blue, dark yellow, orange, pink and a peculiar salmon colour, can be used with silver. Copper only admits of the employment of white, black, and pink and even of these the last is made to adhere with difficulty (this applies to Jaipur copper enamels — R.J.M.) . . . The pure ruby red is the most fugitive, and it is only the most experienced workman who can bring out its beauties."

The flux used is always borax with the addition sometimes of tin oxide to make the enamels opaque. The colours are silicates and borates of different metallic salts : potassium chromate for yellow, manganese carbonate for violets, cobalt oxide for blues, copper oxide for greens, red iron oxide for browns. These are used with the "glass" made up of about 100 parts of quartz, 50 parts of borax, and 200 parts of red lead. The beautiful white and ivory enamel is made from antimoniate of potash, iron oxide and zinc carbonate mixed with "glass"; but we are not sure of how the Jaipur and Delhi enamellers obtained their brilliant reds.

Naturally, there are minor differences in the enamelling techniques of the different places. For example, in Kashmir the article to be enamelled is repousséd before the colours are applied, while in Delhi, Banaras, Lucknow, and Jaipur, the surface is

* Also known as Varanasi.

engraved or chased. Again, in Kashmir the colours used are of low fusibility and are subjected only to moderate heat, just enough to fuse them. The blue enamel is most popular on copper, red and yellow less so. On silver, a light blue colour is common, but these colours are not transparent.

In Kutch, the whole surface is uniformly enamelled, only very thin lines of gold showing and so the result is very much like the most delicate European cloisonné, but the designs are local. The Kashmir work seems to bear a Persian influence, the whole surface being covered, while the Multan work, generally articles and ornaments like bracelets, studs, buckles, etc., are in two or three shades of blue on silver, the enamels being opaque. The reds and yellows are inferior in colour.

Lucknow and Rampur are also important sites producing articles with an etched design on silver, in which blue and green enamels predominate with small areas in yellow and brown. The etching is very fine yet abundant so as to give "the ornamented article, when viewed at a distance, the appearance of being corroded in verdigris." In Lahore, the ornament is deeply repousséd and the depressed areas thickly filled with a rich blue enamel giving a brilliant decorative effect.

In Banaras, the enamelling shows a different and individualistic trend. The enamels are used in large areas in imitation of jewels. The enamel is chiefly used to provide the ground colour and the design itself is produced with precious or semi-precious stones set in the enamelled background.

Work of excellent quality is produced, or at least used to be produced, at Delhi, almost as fine as that of Jaipur. The other centres nearby are Multan, Kangra, and Bhawalpur; in the latter place a slightly translucent blue enamel is mostly used. T. N. Mukharji reports that "Bhawalpur makes a peculiar kind of silver vessel, called *Mokhabba*. It is a covered dish which is highly ornamented with chasing, enamelling, and gilding." The designs are chiefly floral, geometrical diapers, or scrolls, the general effect being rich and attractive.

At Multan, a short-cut method used to be practised, and probably still is, especially for the large-scale production of trinkets like brooches, buttons, studs, etc. Instead of producing the depressed areas of the design in which the enamel is laid by graving out, the design is engraved on a steel die or *thappa* into which the silver plate of the trinket being made is beaten to produce thin raised lines bounding the design. Within the areas produced by these raised lines, almost mechanically, the enamels are laid and finally fired. Copper is also added to the silver to the extent of nearly half its weight, perhaps to make it more workable, though according to the jewellers of Multan this is done as the alloying makes the metal resist the heat of the fire better.

The art of enamelling is known in many parts of the world, the cloisonné method being popular in Europe, though it is not used by the craftsmen of India. This process consists in the lines of the pattern being raised on the surface of the metal by means of fine wire welded on. The depressed areas thus formed are then filled with enamels and fused as in the champlevé process. Later variations, not productive of as fine a result as the orthodox processes, consist in applying the enamels as a paint to the metal and then heated to fuse them. In another method, translucent enamels are applied over a design which has been etched on the metal or repousséd out of the background.

The Japanese also practise the art of enamelling. The pattern is often roughly painted on the background metal. It is then outlined with fine copper or gold wire in imitation of cloissoné enamels. The fusing of the colours follows as usual.

Like most Indian handicrafts, the art and secret niceties of enamelling are handed down from father to son, belonging to a certain special caste, traditionally presuming to be the descendants of divine ancestors. In Jaipur, the home of the finest enamels, the furnace is sunk into the ground about a foot and a half deep, with a channel below for air and supply of fuel. Over this is placed a thin layer of clay traversed by fine tubes for the air draught. Under this are small earthern vessels, holding the "glass" to be used for the making of the enamel colours. The colouring matter is added to the "glass" when fired, and once cool is ready for use.

The best enamel work is done only on gold. The design is first engraved and the enamel, which is previously finely powdered, made into a paste with water. The different colours are placed in the different areas engraved in the gold base in order of their fusibility and fired. The final stage is the grounding and polishing of the whole surface.

As stated before, the Jaipur enamels stand supreme among the work turned out in this country and are of matchless perfection, or at least used to be. Perhaps the earliest known example of Jaipur enamel work is the crutch staff on which Maharaja Man Singh may have leaned as he stood before the throne of Emperor Akbar at the end of the sixteenth century. It is described as "fifty-two inches in length, and is composed of thirty-three cylinders of gold arranged on a central core of strong copper, the whole being surmounted by a crutch of light-green jade set with gems. Each of the thirty-two upper cylinders is painted in enamel with figures of animals, landscapes, and flowers. The figures are boldly and carefully drawn by one who had evidently studied in the School of Nature; the colours are wonderfully pure and brilliant, and the work is executed with more skill and evenness than anything we see at the present day." (*The Journal of Indian Art,* Vol. I, 1886.) It is presumed that it was Man Singh who introduced enamel workers into Jaipur from Lahore.

It is said that the round enamelled plate presented to King Edward VII of Great Britain when he visited India as Prince of Wales is the largest enamelled article

produced and took almost four years to make. Another superb example of the Jaipur enameller's art presented to the then Prince of Wales was a writing-case made in the shape of an Indian gondola-like boat. The stern of the small vessel takes the form of a peacock with its tail sweeping under half the length of the boat and brilliant with the lustre of blue and green enamels, "brighter even than the natural iridescence of a peacock's tail." The canopy of the boat, which also covers the ink bottles, is resplendent in blue, green, ruby, and coral-red enamels — all laid on the purest of gold. As Sir George Birdwood says, "It is the mingled brilliances of its greens, and blues, and reds which, laid on pure gold, make the superlative excellence and beauty of Jaipur enamelling. Even Paris cannot paint gold with the ruby red, coral red, emerald green, and turquoise and sapphire blues of the enamels of Jaipur, Lahore, Benares, and Lucknow." He further writes :

"The art is practised everywhere in India, at Lucknow and Benares, at Multan and Lahore, and in Kangra and Cashmere, but nowhere in such perfection as at Jaipur. It is probably a Turanian art. It was introduced into China, according to the Chinese, by the Veuèchi, and was carried as early, if not, earlier into India. From Assyria it probably passed into Egypt, and through the Phoenicians to Europe. Sidon was as famed for its glass, as was Tyre renowned for its purple ; and the Sidonians were not only acquainted with glass-blowing, but also with the art of enamelling in glass in imitation of the precious stones. Among the Prince of Wales' presents are several specimens of the charming Cashmere enamels, in which the ground of the usual shawl pattern ornamentation, cut in gold, is filled in with turquoise blue. Sometimes a dark green is intermixed with the blue, perfectly harmonised by the gold, and producing a severely artistic effect."

At Pratabgarh also very brilliant and attractive trinkets used to be made by an apparently somewhat different method. A thick layer of green enamel was applied to the background of burnished gold. While still hot, it was covered with very thin gold cut out into different shapes to form hunting, mythological and other scenes. Among the delicate lacework of floral scrolls may sport deer, peacocks, doves, parrots, even tigers and elephants. The enamel was then allowed to cool and harden, when the gold was engraved with fine gravers to produce the secondary characteristic details of the figures. It seems that sometimes a shorter course was followed by the enameller and the design was first engraved in the enamel and a gold amalgam rubbed into the lines of the ornamentation and fixed there by heat.

Sir George Watt has described this technique rather differently and it is possible that two different processes were common previously. "The article is made of a piece of green or red coloured glass, or thick layer of enamel, the crude material for which is imported from Kashmir," he writes. "A frame of silver wire, of the exact size and shape of the glass, is next made, and across this is attached a sheet of fairly thick gold leaf. This is then embedded on lac and the pattern punched out and chased on the gold. The glass is then semi-fused, and while still hot the rim of silver and film of gold are slipped over the edge and pressed on to the surface of the glass. The article is again heated, until a sort of fusion takes place and the gold and glass become securely united. Before mounting the article, a piece of silver tin-foil is placed underneath the glass to give it brilliancy."

The enamel work produced in some parts of Madhya Pradesh, especially Ratlam, is very similar to the above, but the prevailing colour here seems to be a deep blue, unlike the rich green of the Rajasthani craftsmen.

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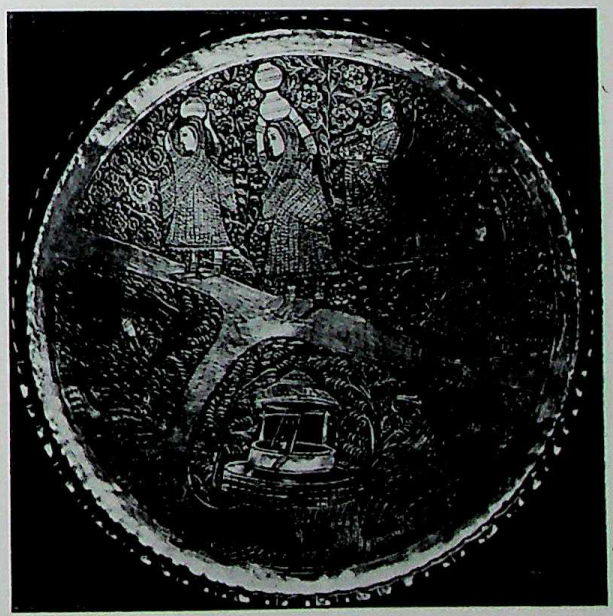

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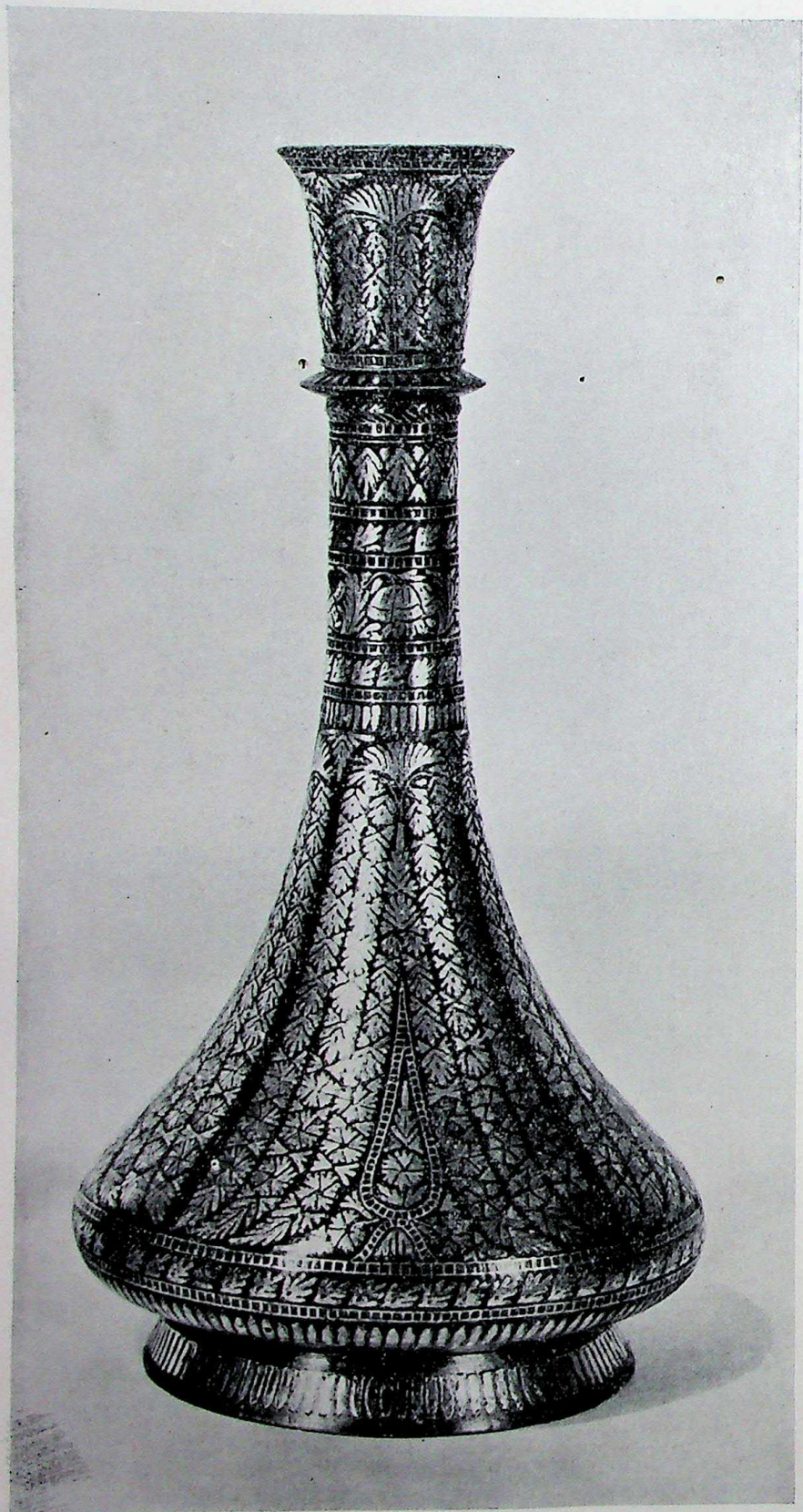
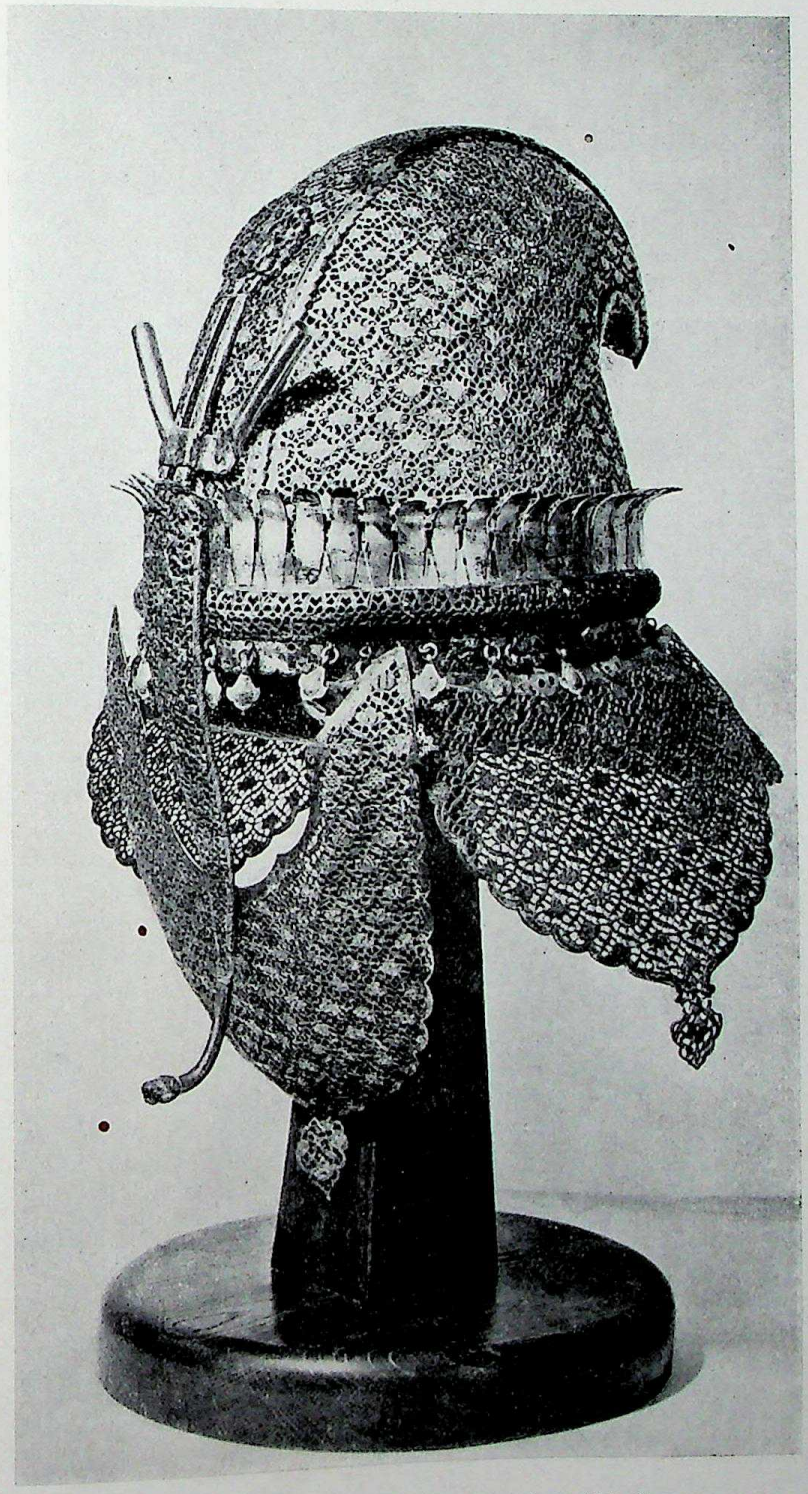
Various articles in base metal. 1. Salver and vase with a repoussé design. 2. Metal lamp shade against a bamboo screen (*Photos by Courtesy of Home Publicity Department, Government of West Bengal*). 3. Brass salver with embossed village scene. (From *The Journal of Indian Art and Industry*). 4. Brass vessel from Assam, called a *ghagari*, a decanter-shaped article with an ornamental top and used for carrying and storing water. (*Photo by A. S. Vaswani*)



A vase in bidri work from Bidar, dating from end of 17th Cent.-early 18th Cent.

A good example of Indian armour, 17-18th Century.

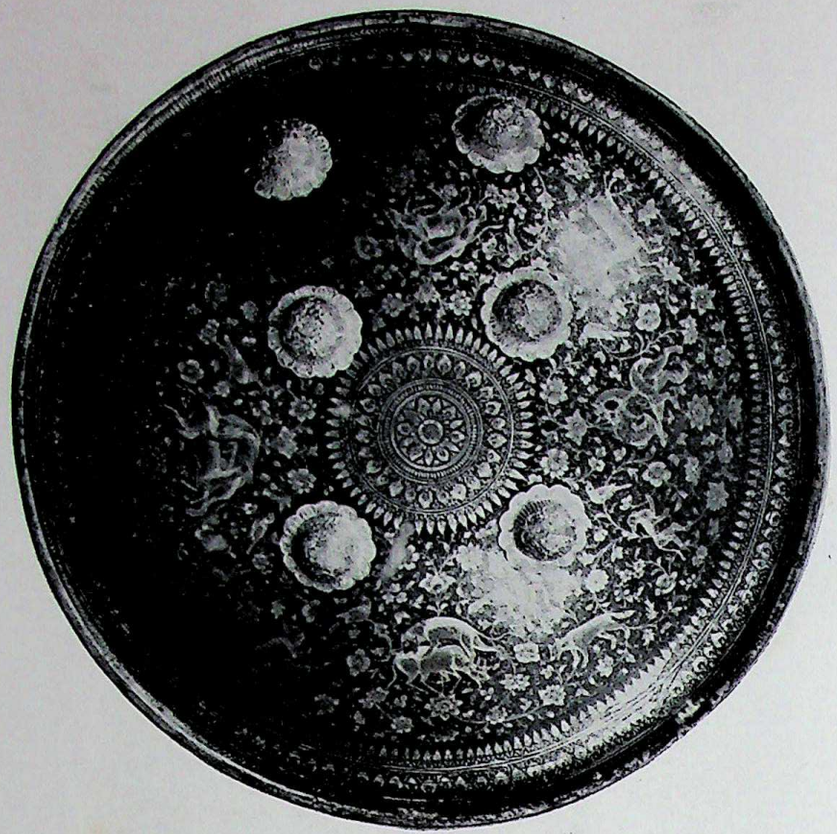
(By Courtesy of State Hermitage, U.S.S.R.)



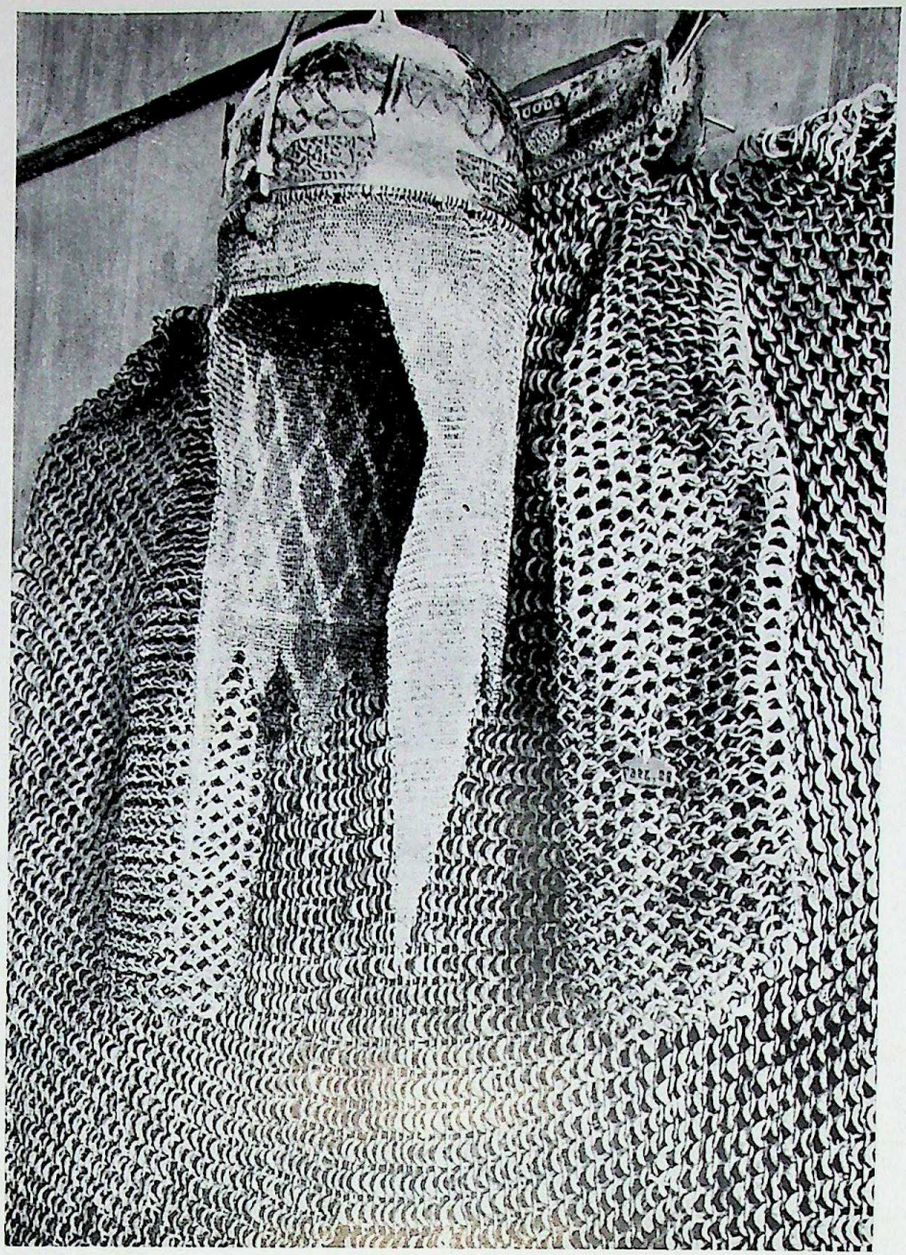
Helmet of Damask steel. Maharashtra. Late 17th Century.

(By Courtesy of State Hermitage, U.S.S.R.)

Decorative work on a *talwar* (Sword).

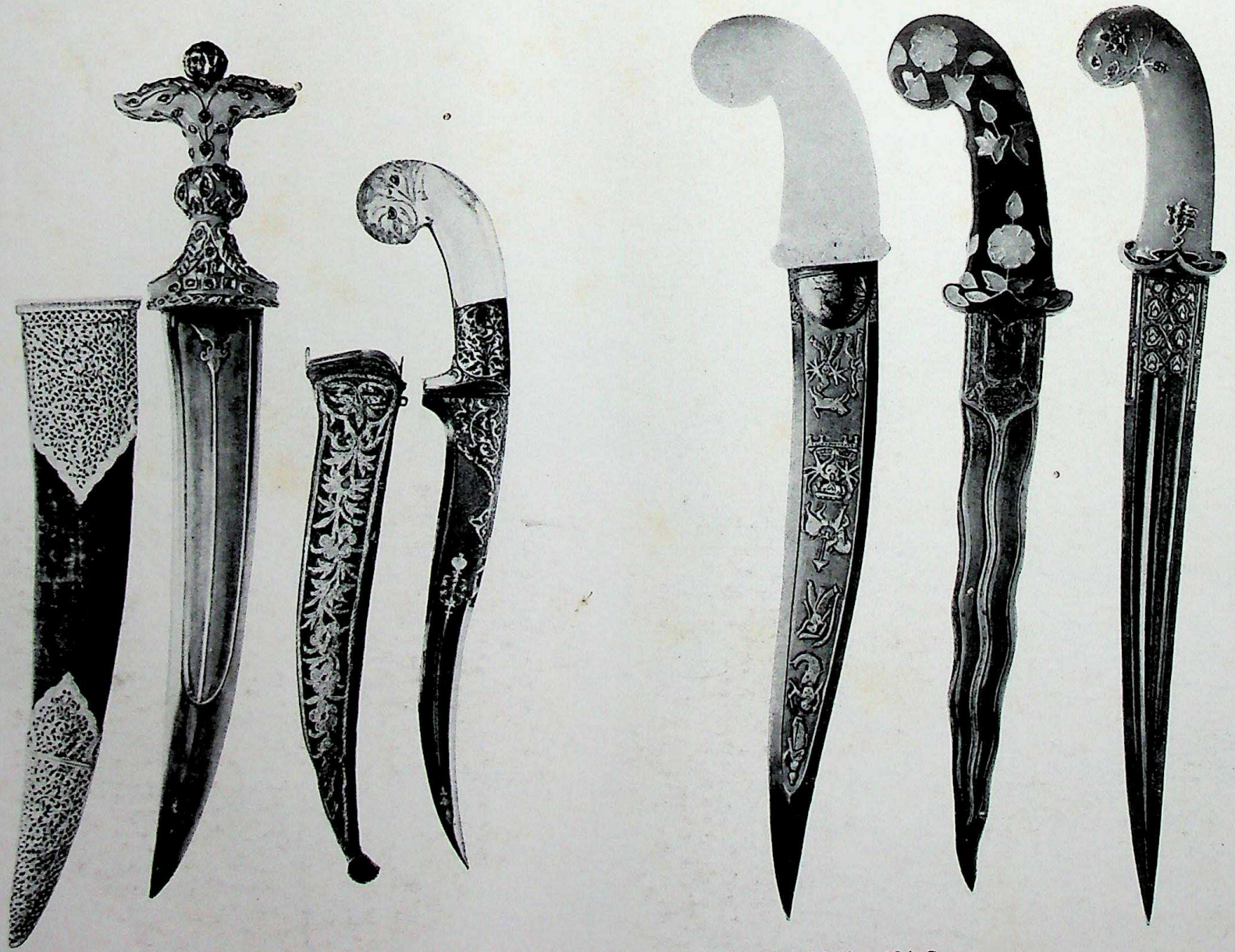


Shield of rhinoceros hide, painted in gold. Central India, 18th century
(*By Courtesy of State Hermitage, U.S.S.R.*)

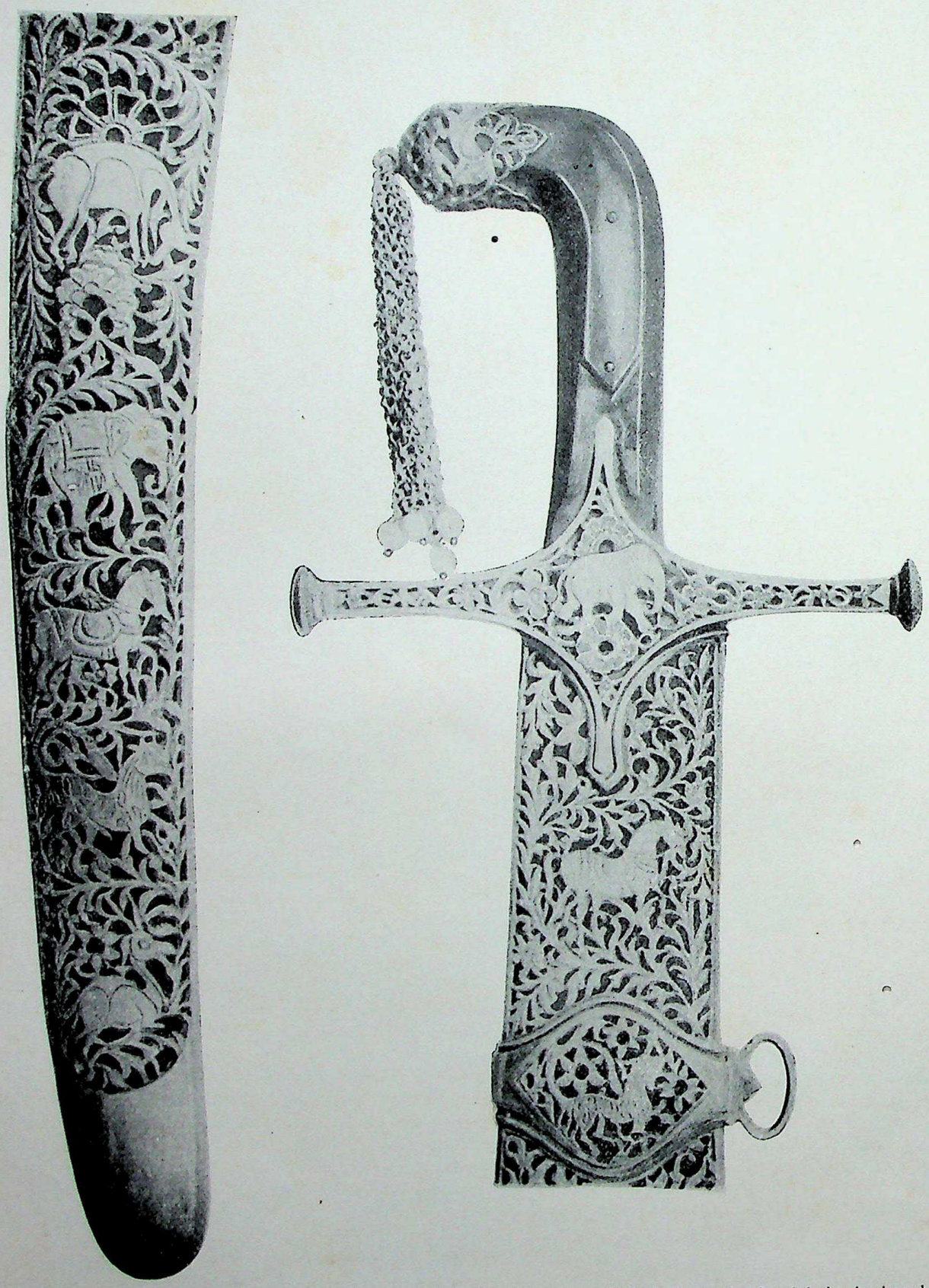


A good example of Indian chain armour. (*By Courtesy of the Prince of Wales Museum, Bombay*)

(*Photo : A. S. Vaswani*)



Gemmed daggers and sheaths with handles of jade and crystal. Central India. 18th Century.
(By Courtesy of State Hermitage, U.S.S.R.)



Details of sword hilt and scabbard in metal pierced work. The elaborate and highly decorative floral design is chased in hard gold. Made in the last century.

(From *The Journal of Indian Art and Industry*)

INDIAN HANDICRAFTS IN BASE METALS

The craftsmen of old were not only proficient in the working of precious metals, but they also used all their skill and ingenuity even in the production of articles of daily use, in brass, copper, and other base metals. By the Mauryan age, even the working of iron was fully understood, and a little later under the Imperial Guptas, the craftsmen were in a position to turn out such masterpieces of technical skill as the Iron Pillar of Chandragupta Vikramaditya (A.D. 375-413) at Delhi.* However, Dr. Vincent Smith and Pandit Haraprasad Sastri both believe that the pillar is really that of Chandravarman, King of Pushkarna in Mewar, and a contemporary of Samudragupta (A.D. 326-375).

This famous monument stands in the courtyard of the Qutb Minar, about eleven miles from Delhi, and is a solid shaft of wrought iron, 23 feet 8 inches in height and almost 16½ inches in diameter at its base, tapering to about 12 inches at the capital which itself is 3½ feet high. Fergusson believed it to date to roughly A.D. 400 and expresses his surprise that the Hindus of such an early age could forge a shaft of iron bigger than any found in Europe even at a later date. A further peculiarity is that even after over 1,500 years, it still stands unrusted, with the inscription engraved on it as clear and sharp today as it was perhaps when first cut. Chippings of the pillar were analysed by Sir Robert Hadfield, F.R.S., who reported as follows :

"The material is an excellent type of wrought iron, the sulphur being particularly low (0.006 per cent.), indicating that the fuel used in its manufacture and treatment must have been very pure (probably charcoal). The phosphorus is 0.114 per cent. There is no manganese present — a somewhat special point, as wrought iron usually contains manganese."

The iron pillar at Dhar was even taller than the one mentioned above, and was probably about 42 feet in height when whole. Presumably a pillar of victory, Bahadur Shah of Gujarat ordered it to be removed, according to the diary of Emperor Jahangir. In the process it fell and broke in two. The smaller piece has disappeared, but the larger part, about 22 feet long remains in place, partly buried in the ground.

Sir George Birdwood also refers to "the beautiful hammered and perforated brass gates of the tomb of Shah Alam at Ahmedabad" as "another notable sample of the great skill of the natives of Gujarat in metal work."

The antiquity of working in base metals is further attested to by the famous statue of Buddha in copper, 7½ feet high, found at Sultanganj and now in the Birmingham Museum and Art Gallery. Probably dating to the Gupta age, it is perhaps the largest example of its kind and fully representative of the proficiency of the ancient Hindus in melting and casting of metals.

Miss Gordon Cumming who visited India during the last century related that the bazaars of Banaras brought to mind the vessels of the Temple of Jerusalem ; of "the cauldrons, pots and bowls ; the shovels, the snuffers, and the spoons, the censers, the basons, the lamps, the candlesticks, and all manner of things to be made either of gold or of bright brass, which might be continually scoured. Here in the open sunlight are stalls heaped up with all sorts of brass work for the use of worshippers, incense-burners and curious spoons and lamps, pots and bowls, and a thousand other things of which we knew neither the name nor the use, but which the owners were continually scouring until they gleamed in the sun." (*From the Hebrides to the Himalayas.*)

The brassware of Banaras has always been noted for its high excellence, its gold-like brilliance and rich colouring. The water goblets, trays, *lotas,* betel-nut holders, *pandans,* salvers, flower vases and plates made here were justly famed for the grace of their forms, the artistry of their designs, and the brilliant chasing of mythological and other figures. Unfortunately, "the tawdry yellow of modern Benares brass, by which Indian metal work is best known to tourists and collectors, well matches its cheap and perfunctory workmanship," says Dr. Ananda Coomaraswamy ; "but old brass is often scarcely less beautiful than gold." Even today, Banaras produces large quantities of brassware, some good, some very inferior.

While the brassware of Jaipur is invariably lacquered that of Banaras is not. Besides, a speciality of the latter place is the chasing of designs in outline against a frosted background, giving a peculiarly pleasing effect.

Banaras is also well-known for the manufacture of images of mythological figures in brass, copper, gold, silver, wood, and clay, with figures in brass predominating. The idols of large size are invariably cast in specially prepared moulds and later finished with files and other sharp engraving tools. An alloy of gold, silver, iron, lead, mercury, tin, copper and zinc, is also sometimes used specially for the figures of Durga, Lakshmi and Siva. The small metal idols are mainly for personal use. The images made in wood, generally that of *Melia azadirachta,* are mostly kept in the temples, not in the home for private worship. It is said that the figures of Kartikeya, the god of war and leader of the celestial armies, specially made for annual

*Probably set up by Kumaragupta I in honour of his father, Chandragupta II Vikramaditya, about A.D. 415.

festivals, were often as much as twenty-five to thirty feet in height.

"In the variety of the designs, in the excellence of the cast, and the rich colouring which gives to the articles a gold-like lustre, Benares brass ware has not been surpassed by any other town in India," believed T. N. Mukharji. This was certainly true in the past, even if the quality of Banaras brassware has deteriorated today.

The actual mode of manufacture is best described in the words of Rivett-Carnac :

"The workers in brass have no tracing or pattern. They may be seen any day in Benares with a brass vessel steadied between their feet, a small hammer in one hand and an iron graver in the other, working out without a moment's hesitation the figures and symbolism, or the foliated designs, appropriate to the vessel in hand. Not a line drawn on the surface of the brass is there to guide them ; still the workman's hand never hesitates, and the incessant tap, tap, of the hammer is deafening as it resounds from all sides."

Banaras was and is not the only place noted for handicrafts in base metals. Many others are well-known for their pots and pans and other domestic utensils and decorative metalware. For example, the brass *lotas* and varied domestic vessels made in Madhya Pradesh, the ancient Gondwana, are characterised by their pure traditional forms. Brass is also used here quite extensively for the making of articles of daily use and ornamental objects like vases, candelabra, cups, bells, etc., and the craftsmen of Madhya Pradesh are also quite adept in working with pewter, pure copper and bell metal. Steel of fine quality is also forged here as well as in some parts of Berar.

As far as the Bombay State is concerned, Ahmadabad, Poona, and Nasik have always been renowned for the excellence of their brass and copper wares. The craftsmen of Ahmadabad especially are experts at delicate work and produce beautiful and delicate cut-work screens in brass, *pandans* for betel leaf, and graceful boxes of all kinds, often exhibiting delicate tracery as their means of ornamentation. According to Sir George Birdwood the cut brass screens are possibly a derivation from the lovely brass gates of Shah Alam's tomb in Ahmadabad.

Regarding the plain metal vessels of Nasik and Poona, the following record left to us by B. A. Gupta, makes interesting reading :

"The *Tambat* or maker of large articles takes a sheet of brass or copper which he lays on the floor, and on it he traces with a compass the shape of the article to be made and cuts it out with scissors or a chisel. The metal is then softened in the fire and hammered first on a hollow stone anvil, and as it assumes a hemispherical shape it is hammered three or four times till it is beaten into shape. Each vessel is generally made of two pieces, a lower and an upper, separately beaten into shape and soldered with brass, borax, and chloride of ammonium . . . The polishing given to cooking utensils is a rough scrubbing, with a mixture of powdered charcoal and tamarind pulp, followed by a further beating with a small hammer till the whole surface is covered with little facets.

"Another set of workers in brass at Nasik and Poona are the *Kalaikars,* tinners, who are Panchals by caste . . . These *Kalaikars* differ from *Tambats* by casting pots as well as beating them into shapes, and by making small, instead of large, articles.

"The lathe-worker polishes the vessels on a lathe. The process is simple. The vessel is fixed to the lathe with resin wax, and the wheel is turned by a labourer ; the polisher sitting close to the vessel, presses against it a sharp-pointed tool, called *randha,* which he rests on a small iron guide-bar, and which, as the pot whirls round, scraps its outer surface."

Quite a lot of work in base metals is also done in the south — some of a very high quality. Utensils are made both in brass and copper and the brasswork of Nellore is especially good, although inferior perhaps to that of Tanjore and Madurai, places which may be said to produce the finest work in brass — some say, in the whole of India. To quote Sir George Birdwood, "In its bold forms, and elaborately inwrought ornamentation it recalls the descriptions by Homer of the work of the artists of Sidon in bowls of antique fame. Some are simply etched, and others deeply cut in mythological designs and others are diapered all over with *crustae* of the leaf pattern, seen in Assyrian sculptures, copper on brass, or silver on copper, producing an effect often of quite regal grandeur." He is apparently referring to the Swami style of work already dealt with in the previous chapter.

A brief description of the process of manufacture of base-metal vessels in the southern regions of the country is essential. First, a circle of the required diameter is cut out of sheet metal with shears. It is then formed into the shape of a rough bowl by hammering it over the hollow in a stone die and beating into shape with hammers of different sizes and shapes over crude iron anvils. Large vessels with long necks are generally made separately in three parts — the base, the body, and the neck — and the individual parts afterwards carefully soldered together and finally polished.

The process of casting in brass is also practised in the south. To cast a vessel, first a solid model of the vessel is made out of clay and when dry it is covered with a layer of prepared wax, fitted in a lathe and turned, a metal rod having previously been driven through the model. The turned model is again covered with a thick layer of infusible clay and when dry, a small hole is drilled in the outer layer. Through this the molten metal is poured in and the melted wax runs out. The metal occupies the place of the wax coat and takes the shape of the intended vessel. The clay is now removed and the article finished on the lathe.

Although bell-metal may also be used for casting, pure copper is rarely used, due to the fact that it cools too rapidly and thus does not fill every nook and

cranny of the mould. The admixture of a small quantity of lead or zinc counteracts this tendency for rapid cooling, yet does not alter the colour of the copper.

Besides the usual kind of brass, the Hindu craftsmen sometimes use a special alloy of copper mixed with gold, producing from it articles of unparalleled beauty. It should also be pointed out that the so-called bronze of India is not a true bronze, that is, an alloy of copper and tin, but copper alone which has been artificially darkened.

It should not be thought that articles in base-metals are not made except at the places mentioned above. Actually, they are common throughout the country, especially copper and brass utensils for domestic use. The bowls, sacrificial spoons, censers, and the inevitable *lotas* or water-vessels take the place in the Indian household of the porcelain and glassware of the European family. The *lota* is most typically Indian — an ewer which is either globular or melon-shaped and slightly flattened from top to bottom. It is presumed that the word is derived from "lotus," the water-lily, and comes from the same root as the Latin "lotus", "washed", and the English "lotion." It is certainly a utensil of ancient vintage as the one discovered by Major Hay in 1857 in Kulu, has been attributed by Oriental scholars to A.D. 200-300. This fine piece of workmanship is chased all round with representations of Prince Siddhartha, the Buddha before his Enlightenment. He is shown ready to go on a probable mission. An officer of state is shown in front, seated on an elephant ; there are also singers and two girl musicians playing the flute and the *vina*. Among them is Prince Siddhartha in his chariot drawn by four prancing horses. The whole engraving is done with a freedom of artistic expression and advanced technique that clearly shows that the art of working in brass and copper was indeed an ancient one even at that early time.

The making of base-metal articles in imitation of precious enamelled ware is an old craft, the chief centres being Moradabad, Jaipur and Kashmir. The process does not materially differ in these places and consists of chasing the designs on the metal, generally tinned brass, the depressions thus made being filled with black or coloured lac, applied with a hot tool to fuse and distribute the lac over the surface of the metal. The excess spreading beyond the lines of the design are removed with a smooth file or by means of sand or brick-dust and water, after which the surface is carefully polished, the pattern appearing in colours within the metallic surface. Naturally, if the article is previously silvered, gilded, or tinned, the coloured design shows on a silver, gold or tinned background.

In Kashmir and some parts of the Punjab, two designs are very popular. The Floral Rosette consists of tiny rosettes arranged on a spirally twisting line passing round the object, thus forming an intricate pattern of rosette bunches. The Arabesque style is really beautiful, consisting of elongated figures which at first sight seem as if composed of Arabic inscriptions arranged geometrically. Actually, the design is formed of bifurcated and finely interlaced floral scrolls.

In the case of Moradabad craftsmanship, the engraving is either *sada* (plain) or *sia kalam*. In the former style, a floral design is generally incised or engraved on the brass article which has been previously tinned so that the "gold" of the brass shines through the incised lines of the design against the white lustre of the tinned background. Sometimes the process is carried a little further and the areas inside the engraved lines of the pattern are further embellished with frosted decorations or small perforations. The engraving may or may not be filled with coloured lac.

In the *sia kalam* style, the actual ornamentation is embossed in low relief or the ground graved out to bring the floral design into low relief, sometimes against a minutely chased background. The depressions in the ground are then filled with coloured lac leaving the floral scrolls of the design in the golden yellow of the brass. At present, in inferior work, white, red and green synthetic lacquers are used instead of the lac. According to one authority, "The oldest and best of Moradabad work is marked by bold and simple outlines, not overloaded with detail ; the modern tendency is to deprive the artistic effect by too minute enrichment and too complicated tracery." No wonder, "the elegant shape of the vessels with their rich floriated patterns standing out in their gold or silvery brightness on a black ground soon attracted the attention of the European visitors, and their sale went up by leaps and bounds."

Moradabad is also known for its imitation bidri-work. The copper or brass article is first tinned and then the background of the design is punched down, leaving the floral ornamentation in relief. The depressions are next filled with black lac, melted with a hot bolt, and the excess removed with sandpaper or powdered brick and water. This produces a shiny floral pattern on a black groundwork, but it can really stand no comparison with real bidri-work.

In the past the patterns used to be large and bold, but these have given place to a minute style called *marori*. A still later change is the *charakwan* style, in which the pattern is in black or coloured lac over a brass background left in its natural polished state. The same tendency is to be noted also at Jaipur and is probably due to the fact that it is easier, quicker, and less laborious to produce a coloured design on a metallic surface than a metallic one on a coloured background.

The craftsmanship of Kashmir is more or less alike to that of Moradabad. The brass or copper is engraved with a diffused and minute floral or shawl design and the sunken ground filled in with a black lac composition. Often the articles are covered with small embossed flowers or floral decorations that shine out from the black foliated pattern of the background, sometimes so delicately chased as to appear almost like the finest lace.

The craft of the Kashmir tinned work was reported in 1878 by J. L. Kipling who was then the Curator of the Lahore Central Museum. According to him, "Articles to be engraved are first shaped from sheet copper or brass, seldom cast, excepting the handles, knobs, hinges, etc.

"The pattern is traced with a steel style, and is then cut with great rapidity with a hammer and small chisels or punches. When the engraving is complete the object is heated and the ground is filled in with heated lac ; after which it is rubbed with deodar charcoal, which polishes the plain surface and removes the superfluous lac. The work is again heated and rubbed till the lac has lost its shine, and a dead black deposit is left in the incised parts. The whole is then tinned in the usual way, the lac acting as a reserve and stopping out the tin."

According to Mr. Kipling, this type of work was also done at Peshawar and at Amritsar, but it was never of the same superior quality as that of Kashmir. As for the latter, "Compared with older samples it will be seen that the modern work is neater, smaller, and less bold in character ; nor are there any plain parts left to relieve the rest."

Engraved brassware with motifs of flowers, jungle scenes and general landscapes is a speciality of Jaipur. Here the engraving is done in three styles :

Bidri — The entire surface of the metal is chased with minute leaves and flowers and the article then lacquered.

Chikan — The repoussé floral decorations are bold and stand out prominently against a minutely chased and lacquered surface.

Marori — The design is minute and covers the whole surface ; as usual the surface is finally lacquered.

Repoussé work in base metals is fairly extensive throughout the country, but an indication of the chief styles may be of interest :

The Punjab, both East and West : The designs are in low relief with clean outlines, almost in Italian style.

Kashmir : Elaborate repoussé in low relief is common, sometimes rather finicky in appearance ; there may also be pierced ornamentation in the Persian style.

Lucknow : The style here is bold with no surface chasing, but with occasional use of fretting.

Rajasthan : The material used is generally highly polished brass, with rich repoussé work which is never over-ornamental. The brass may however only be engraved without any repoussé work.

Bombay Area : The repoussé work is bold and massive.

Mysore : The best known articles made here are circular plates with floral scrolls laid in concentric designs ; round, oval and octagonal trays are also made.

In some places, wood is first carved in the design required and over this a thin plate of tinned copper (*nakashi*) is placed. This is then gently hammered onto the wood till the plate takes the form of the carving, when it is firmly nailed to the wood with fine pins.

In Bengal, brass and copper are commonly used, but today bell-metal, called *kansa* in Bengal and *phul* in northern India, has also come into use. It is an alloy of copper and tin in the proportion of about 7 to 2.* The articles are made either by the *cire perdue* process or by hammering.

For the latter method of manufacture, the metal is melted in a clay crucible (*muci*) over a wood or charcoal fire. When molten, the metal is poured into moulds and cooled with the use of salt water. This "ingot" is again heated and beaten into sheets over iron anvils. The sheet is then cut into smaller sizes and each piece again heated and hammered. This annealing and hammering of the metal with different kinds of hammers is continued until the sheet takes the form desired. The article may then be finished with chisels and files and finally polished with jute or cocoanut fibres soaked in oil. When pieces have to be soldered together, *pan* is used consisting of scrap brass and borax.

In Bengal, raised decorations are not popular on domestic utensils and so incised designs are resorted to. The patterns are floral or geometrical, the commonest motifs being fish and bird figures, and gods and goddesses. The incising is carried out with small chisels used to make the dotted or unbroken lines which go to form the design. The experienced worker uses no traced outlines of the design on the metal, but out of long training and practice, forms the pattern straight on the metal with his engravers and chisels and his light hammer.

The shapes of Indian domestic vessels are generally very graceful and yet they are also functional. For the benefit of non-Indian readers, some of the common utensils may be mentioned.

The commonest is the *lota,* already mentioned before, a globular vessel with a flattened top and a reflexed rim; this is the form as used mostly by Hindus. The Mohammedan variety or *tonti,* as it is also called, has a spout as Islam ordains that "a man shall perform his ablutions in running water." And when poured out of the *tonti* it is figuratively considered to be running water.

Then there is the slender, long-necked *surahi* with more or less globular body — a favourite vessel for decorative treatment; The *karbah* or water-pitcher, almost like its Western counterpart, the *aftawa* or wine jug with a spout in the design of Mughal times. In Bengal, we have the graceful *kalasi,* also a water-pitcher, and the small jugs, *ghati.*

* Bell-metal contains more tin than bronze, also an alloy of copper and tin.

"Domestic brass is the glory of a Hindu kitchen," says Dr. Ananda Coomaraswamy; "it is cleaned daily, and polished to a degree that must be seen to be believed. Most important are the large and small *lotas* for water, and smaller vessels with a wide mouth for milk; then all sorts of shallower bowls and dishes for cooking rice, some of which, belonging to communities or guilds, are of enormous size — cauldrons rather than bowls; then other vessels for special purposes, of which perhaps the finest are the *surahis,* globular in shape, with a long narrow neck . . ."

Among the many domestic utensils made in the Gujarati-speaking regions may be mentioned the following :

Cooking vessels : Pateli, a cylindrical pot with a slightly rounded bottom, from two inches to five feet in diameter ; *tapali,* a pan made in different sizes ; *parat,* a large circular dish with a turned-up rim of about two to four inches ; *koshimbaricha ghad,* a set of seven cups joined together with six cups arranged round one in the centre and with a handle over the top, used for serving dishes.

Vessels for carrying and storing liquids : Handa, ghagar, and *kalasi,* vessels of different sizes for storing water ; *pohara,* a vessel with a rope attached for drawing water out of wells ; *lota* and *loti,* large and small vessels for taking water out of large vessels and drinking water out of ; *piyala,* metal cup.

Miscellaneous articles : Karanda, a box for keeping the red *kunku* used for applying on the forehead ; *pikdani,* spittoon ; *attardani,* vessel for keeping *attar* or pure oily flower extracts used as perfumes ; *gulabdani,* vessel used for sprinkling rose-water at religious ceremonies.

Among the ceremonial vessels and implements may be mentioned the *kosi* for raising water ; the *kusi,* a spoon-shaped article used by the priests for sprinkling water ; the *dhupdani* or censer ; the *arti* or lamp, and the bells called *ghanta.*

The ritual utensils and ceremonial implements of Bengal are the ornamental plates in copper called *puspapatras,* made in different sizes to hold flowers and other offerings during ceremonies ; lamps used in temples (*pancapradips*), the most characteristic being the lamp in the form of a female figure holding in her two hands a shallow bowl for the oil and the wick ; the *ghantas* or bells, little different from the Western variety, rung in the temples at the time of worship. There are also small stands to hold the votive offerings, their chief motif being a peacock or a bull, both boldly and skilfully modelled. Then there is the *kosa,* a vessel shaped like the petal of the flowers of the plantain tree ; the *kusi,* a small spoon used with the former. The *tamrakunda* is a basin for bathing the idols in ; the *saji* is the basket-like vase for flowers. The sacrificial vessels are often decorated with figures of gods and goddesses or floral designs.

The piety and devotion with which objects for ritual use were made is well exemplified in the *Mahanirvana Tantra* : "The jar is called *kalasha,* because Vishvakarma made it from the different parts of each of the Devatas. It should be thirty-six fingers in breadth in its widest part and sixteen in height. The neck should be four fingers in breadth, the mouth six, and the base five. This is the rule for the design of the *kalasha.*

"It should be made . . . without hole or crack. In its making all miserliness should be avoided, since it is fashioned for the pleasure of the Devas."

The *Devas* referred to above are deities, while *devatas* are minor gods or divine beings.

The lamps made for temple or ritualistic use in India are of many different kinds, the most characteristic being those in the form of a branching tree, each branch ending in a small tray or bowl for the oil and the wick. Simple upright ones support shallow bowls to take many wicks, the central pillar often terminating in a bird finial, generally a peacock or *hamsa,* the swan. Lamps may also be made to be suspended by chains from the ceilings, the chains often being richly decorated and always excellent in workmanship and design. A common form of the temple lamp is in the form of a standing woman, holding in her hands a shallow bowl to contain the oil and wick. These lamps have already been mentioned, but to quote the famous Indian authority, O.C. Gangoly :

"Of all the forms met with in South India few are perhaps so interesting and characteristically South Indian as those conceived in the forms of human statues carrying in their hands the cup which serves as the receptacle for the oil for burning of the wick. This type of lamp occurs very frequently, and with some variations is profusely strewn over almost all the temples in South India. The statue holding the wick is generally a female figure and is technically known as *Deepa Lakshmi.*" The male form is not so common although interesting specimens can sometimes be seen in the temples of the south. Surprisingly enough, lamps with human motifs are not found in the north, or as a matter of fact anywhere else in the country, except perhaps in Bengal to a limited extent, and even these may be southern derivatives.

Almost as popular as the figure lamps are the *hamsa* (swan) lamps. The receptacle for the oil and the wick is at the top of an upright decorated with knobs and other patterns and the whole surmounted with the figure of a swan — "as an auspicious and beautiful bird it has a place of honour and precedence before all." (O. C. Gangoly.) In South Indian art, the swan so symbolical of beauty and grace, is usually depicted conventionally with upturned tail "which reproduces a fancy of the artist rather than a fact in Nature."

INDIAN ARMS, ARMOUR, AND CUTLERY

Mention has already been made of Akbar's personal interest in his armoury and especially in damascene work. But a knowledge of the use of weapons of war was considered a part of a youth's training, especially of the ruling class, from the most ancient times. As elsewhere in the world, the bow and arrow constituted perhaps one of the earliest of offensive weapons and mention of the use of the bow is to be found in the *Rig Veda*. As a matter of fact, so important was a knowledge of the correct use of the bow considered that the *Dhanur Veda* is devoted to the science of archery, especially as a military art.

In both the great Indian epics there is a stress on skill in the use of the bow. In the *Mahabharata,* Arjuna, clad in mail of gold, won Draupadi through his skill in archery :

" Gauntleted and jewel-girdled, with his bow of ample height,
Archer Arjun pious-hearted to the gods performed a rite.
Then he stepped forth proud and stately in his golden mail encased,
Like the sunlit cloud of evening with the golden rainbow graced.

* * *

Towering high or lowly bending, on the turf or on his ear,
With his bow and glist'ning arrows Arjun waged the mimic war,
Targets on the wide arena, mighty tough or wondrous small,
With his arrows still unfailing, Arjun pierced them one and all! "

(*Romesh Dutt Translation*).

Accordinng to the *Ramayana,* Rama won Sita for his bride by being the only one who could bend the great bow of Siva.

" Janak monarch of Videha spake his massage near and far,–
He shall win my peerless Sita who shall bend my bow of war,–

* * *

Janak spake his royal mandate to his lords and warriors bold :
' Bring ye forth the bow of RUDRA decked in garlands and in gold, '

* * *

Mortal man will struggle vainly RUDRA'S wondrous bow to bend,
Vainly strive to string the weapon and the shining dart to send,

* * *

Viswamitra humbly listened to the words the monarch said,
To the brave and righteous Rama, Janak's mighty bow displayed,
Rama lifted high the cover of the pond'rous iron car,
Gazed with conscious pride and prowess on the mighty bow of war.
' Let me, ' humbly spake the hero, ' on this bow my fingers place,
Let me lift and bend the weapon, help me with your loving grace.'

* * *

Wond'ring gazed the kings assembled as the son of Raghu's race
Proudly raised the bow of RUDRA with a warrior's stately grace,
Proudly strung the bow of RUDRA which the kings had tried in vain,
Drew the cord with force resistless till the weapon snapped in twain !
Like the thunder's pealing accent rose the loud terrific clang,
And the firm earth shook and trembled and the hills in echoes rang."

(*Romesh Dutt Translation*).

Even the gentle Prince Siddhartha, who was to be Gautama the Buddha, Enlightener of the World, was skilled in the use of the bow and won the lovely Yasodhara at a martial tournament, surpassing all other suitors in deeds of valour and war-like skill.

The antiquity of interest in weapons of war is further proved by mention in the ancient *Agni Purana* of a classification of arms, and different kinds of weapons of war which can be seen represented on the sculptures of the most ancient times.

Abbé Dubois, whose facts are not always above suspicion, writes : "The Hindus have 32 different kinds of weapons, and each of the 32 gods has his own peculiar weapon. Krishna and Ram are armed with a battle-axe and a bow and arrow. Vishnu holds the 'chakra' (steel quoit). Kartikeya, the god of war, and Ravan, the giant, bear in their hundred arms a display of every species of military offensive weapon. Indra, the god of the Kshatriyas, is represented as riding on an elephant, and armed with the sword and 'chakra', the battle-axe and the thunder-bolt."

Sir H. Elliot believed that India was aware of firearms during her legendary and heroic age. *Agni astra,* fire-tipped darts, were used as rockets against cavalry. The invention of this weapon is ascribed by the *Puranas* to Vishwakarma, the Vulcan of the Hindus, who forged the mighty weapons of the gods. It is even presumed that gunpowder, made of sulphur and saltpetre, was also made in that remote age, although this knowledge must have died out by a later period.

The coins ordered to be made by the Indo-Scythian kings of Northern India bear representations of figures in coats of chain mail, with a short straight sheathed sword by the side. But perhaps the best description of Indian arms of a very early period is obtained from the sculptures of the Sanchi stupa and other Buddhist monuments. Describing one of the sculptured panels, Sir A. Cunningham says :

"There is the representation of a siege . . . The soldiers wear a tight fitting dress and kilt ; the arms are a sword and bows and arrows. The swords are short and broad, and tally exactly with the description of Megasthenes . . . The infantry usually carried a bow of the same length with the bearer."

On a pillar at Amaravati, almost 300 years later than Sanchi, is portrayed a king with his army in front defending the citadel walls and armed with scythe-shaped or straight swords, long bows, and long spears.

Many warriors are depicted in the Ajanta frescoes and they are generally armed with a kukri-like short sword and ornamental shields. In the Jain sculptures of Satrunjaya, "we find represented combatants using swords either short and straight, or curved forward at the point, and short straight daggers, both weapons furnished with square pommels, but without guards to hilts." (Egerton.) Armed and mailed figures are

also to be seen in the sculptures at Bhubaneshwar, Konarak, and Mandor.

Coming down to Mughal times, Abul Fazl's description in his *Ain-i-Akbari,* of Akbar's armoury gives us a good account of the arms prevalent in those days :

"There is always kept in store armour sufficient for the equipment of an Army. All weapons for the use of His Majesty have names, and a proper rank is assigned to them. There are 30 'Khacah' swords (applied to His Majesty's particular use), one of which is carried to the Haram every month, and the former one is returned. There are also in readiness 40 other swords, which they call 'Kotal', out of which the complement of 30 is made up. There are also 12 sword belts (Yakbandi) kept apart, and sent into the Haram one every week alternately. There are likewise 40 'jamdhars' and 40 'K'hapwahs' (kinds of daggers). Their turn recurs every week, and each has 30 'kotals', from which deficiencies are supplied as before. There are besides 8 knives worn in the girdle, 20 'nezas' or spears, and 20 'barch'has' (kinds of spears); a different one of each is used every month. 86 Mashhadi and Bhadayan bows, with 24 others, out of which, in every solar month of 32 days, one bow is sent to His Majesty every day ; and during every month of 31 days, two every week alternately. Every one of these has its rank assigned to it, and when His Majesty goes abroad, the sons of the Amirs and other Mansabdars and Ahadis carry the Qur in their hands and on their shoulders, i.e., every four of them carry 4 bows, 4 quivers, 4 swords, and 4 shields ; they take besides lances, spears, a tabar-zaghnol (kind of battle-axe), war clubs, sword sticks (*gupti*), pellet-bows, pestles, and a footstool, all properly arranged."

Wilbraham Egerton, who arranged the exhibits of war weapons in the India Museum, has given the following list of Indian names of the arms and accoutrements of the time of Akbar, together with their English equivalents :

Dhal – shield
Sipar – shield
Phari – cane shield
Angirk'hah – long coat worn over the armour
Bhanju – coat with gorget attached
Tschehouta – spear
Tarkash – quiver
Baneh – sword
Katarah – dagger
Chaqu – clasp knife
Jamdhar doulicaneh – two-pointed dagger
K'hapwah – dagger
Bank – dagger
Tabar zaghnol – double axe
Gardani – protection for the horse
G'hug'hwah – mail-coat for head and body in one piece
Kant'hah sobha – neckpiece or gorget
Zirih – coat of mail
Qashqah – head protection for the horse
Barchha – lance
Maktah – bow
Bhelhetah – sword
Tarangalah – axe
Gupti kard – long dagger
Jamdhar – board dagger
Jambiyah – another kind of dagger
Zaghnol – axe with pointed end
Shashpar – globular mace

No superb instrument of destruction, whether edged or pointed, could be made of inferior metal and the steel of India has always been famous for its superior qualities. The celebrated blades of Damascus were certainly made of Indian steel. The Ondanique of Kirman mentioned by Marco Polo was also probably of iron mined in this country and the Kirman swords were much in demand in the fifteenth and sixteenth centuries among the Turks who considered them to be of excellent quality. The Greek, Flavius Arrian, who wrote an account of voyages round the Euxine and the Red Sea, mentions the importation of Indian steel through Abyssinian ports. And the Greek Salamasius refers to an ancient Greek treatise "on the tempering of Indian steel." Again, to quote the ancient writer Edriel, "the Hindoos excel in the manufacture of iron, and in the preparation of those ingredients along with which it is fused to obtain that kind of malleable iron, usually styled Indian steel. They also have workshops wherein are forged the most famous sabres in the world." All this certainly confirms the antiquity of a knowledge of mining and forging of ferrous metals in this country.

The mines of Nirmal, on the banks of the Godavari, produced the excellent magnetic iron that was used in the manufacture of Damascus blades and even by the Persians for their swords. The iron ore was extracted by means of small shovels through narrow holes dug in the granitic soil. It was then washed to remove the matrix of quartz and granite, and the ore-rich sand thus obtained smelted with charcoal.

Mr. Wilkinson, who was a well-known authority on the subject, has thus described the general mode of small-scale manufacture of iron in India in the years past :

"The furnace is of a rude description, being composed of stones and mud or clay. The iron ore is reduced to a coarse powder. The furnace being filled with charcoal (bamboo charcoal was preferred as it contains a high percentage of silica which acts as a flux — R.J.M.), the fire is urged by two bellows, each made of a single goatskin, and furnished with a bamboo nozzle, until no moisture is given out ; a small basketful of the ore is then poured in at the top, and a large basketful of charcoal, and so on alternately. The scoria begins to run in about an hour, but no flux is employed. In about six hours the process is finished.

"The crude iron thus obtained has never been really melted, but falls by its weight to the bottom of the furnace, where the grains agglutinate ; in this state it is often malleable. The wall of the furnace is broken down, the red-hot mass is dragged out and divided into pieces, which are sold to the blacksmiths and formed into small bars." (*Engines of War.*)

The high quality of Nirmal steel has already been mentioned. Dr. Malcolmson believes that this is due to the ore being a relatively pure protoxide. He has

thus described the method of preparing the steel :

"The mines are mere holes dug through the thin granite soil, and the ore is detached by small iron crowbars ; it is then collected and broken by means of a conical-shaped fragment of compact greenstone, and when too hard it is previously roasted. The sand thus procured is washed, and the heavier parts separated by this process are smelted with charcoal in small furnaces four or five feet high and five feet in diameter, sunk two feet below the surface of the ground. The fire is kept up by a blast from four bullock skins placed at right angles to each other, the muzzles resting on the upper edge of the furnace so as to force the blast downwards. The bellows are plied night and day, and during the operation the men are relieved every four hours, each working twelve hours out of twenty-four. The iron is obtained in a malleable state, and being cut into pieces of about one pound in weight is converted into steel by putting it into crucibles of various sizes, according to the purposes for which the steel is to be applied. The fire is then kept up for twenty-four hours with the dried branches of teak, bamboo, and green leaves of various shrubs, as the natives believe that the different kinds of woods employed in both processes have a decided effect in producing different qualities of iron or steel. It is then allowed to subside, and the crucible is placed on the ground to cool gradually, so that the particles form crystals, from which the 'jauhar', or beautiful combinations so much prized in the sword blades, are obtained. When cold it is opened, and a cake of great hardness is found weighing on average about a pound and a half. The cake is covered with clay and annealed in the furnace for twelve or sixteen hours ; it is then taken out again and cooled, and the process repeated three or four times till the metal is rendered sufficiently soft to be worked." (Quoted by Egerton.)

Steel of excellent quality was also produced on the banks of the Narbadda, in some regions of Madhya Pradesh, in Berar, and Mysore. The chief centres of manufacture of matchlocks were Gujarat, Lahore in West Punjab, Kotah, Patiala, and Bundi in Rajasthan. Delhi specialised in damascened arms, and the manufacture of beautiful and supple coats of mail. Pistols were made in later days at Monghyr in Bengal. Besides these places, ornamented and plain arms were also produced at Gwalior, at Aurangabad and Lashkar, and at some centres in the south. Special kinds of weapons were also made at Chittagong, now in Pakistan. Many of the *kukris* that the sturdy Gurkhas made famous in two world wars — a curving blade, widening in the middle and drawing to a point at the end and with a short handle — are made here as well as in their own homeland. Sir George Birdwood wrote in the last century, "Handsomely painted leather shields are made at Ahmedabad and in other parts of Gujarat in the Bombay Presidency, and also in Rajputana (Rajasthan today — R.J.M.); and the Kutch silversmiths are famous all over India for their decoration of arms of all sorts in repoussé gold and silver."

Certain regions of Madhya Pradesh, and Nagpur nearby, were always famous for the manufacture of excellent weapons of war like spears and daggers. It is presumed that they were made of steel made from the iron mines of the Narbadda and Tapti rivers. Good swords, spears, and daggers also used to be made in Madras and all over Mysore and are still made to a certain extent. Vizianagram in the south was especially noted for its superbly decorated arms and these were chiefly used for purposes of show and pageantry. The handsome Coorg sword called *udya kathi* and the Coorg knife or *pitcha kathi,* worn tied to the waistband even today, are known to all collectors of arms. The blades are of inferior steel, though the handles may be of ivory and the sheath of bamboo or blackwood, with richly mounted silver decorations. The *udya kathi* (or *uda kathi*) is generally two feet long and from four to five inches in width. It may have a handle made of horn instead of ivory.

Apart from steel, other metals were often used in the manufacture of arms, especially for the decorative non-functional parts. For example, some of the oldest weapons found in South India and in Nepal seem to have been made of wrought iron, hammered to increase the tensile strength.

Steel was, of course, the metal most employed, often the blade and the hilt being in one piece. The decoration may be in high relief and/or the steel inlaid with silver or gold wire. Very rarely, the hilt was made of gold with the design in inlaid steel.

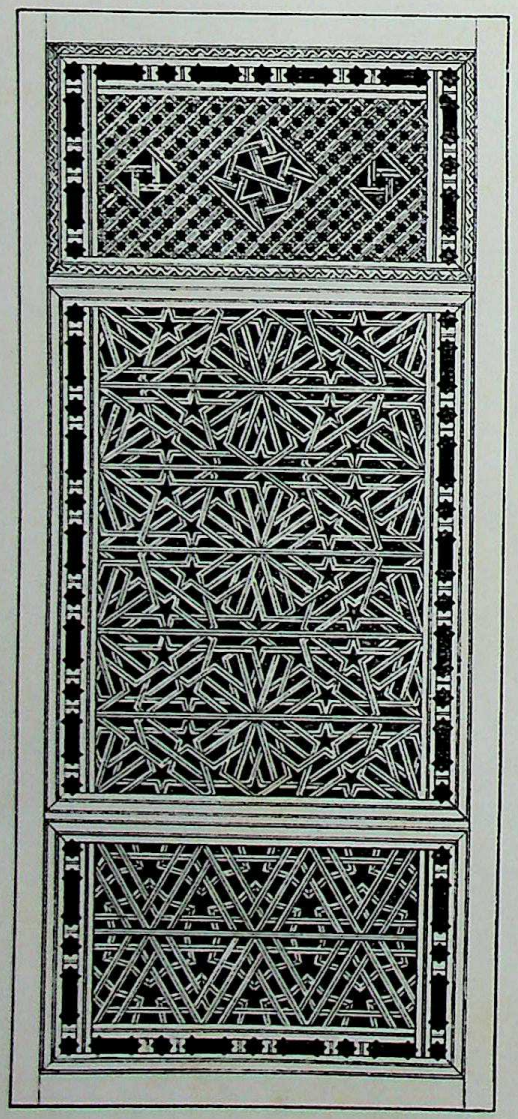
The use of brass is also not unknown, as for example the engraved brass handles of the knives used by the Moplas of Malabar. In the south, the brass used to be inlaid with silver. Sometimes, brass figures and other ornaments in high relief were welded to the steel weapon. Copper was rarely used, except as a base for enamelling, though in Kutch, copper was repousséd and gilt. The hilts of gauntleted swords would be bronzed or silvered, and occasionally the sword handles actually made of silver.

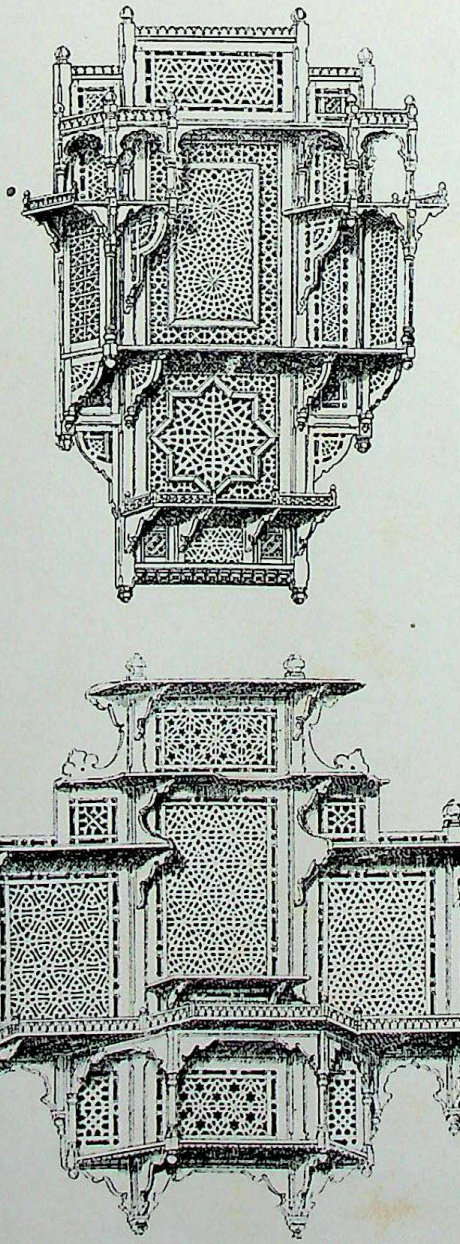
Gold was used purely for the decorative processes, especially for the scabbards and more rarely for the hilts. Compare this with the Malay and Sumatran knives which are "richly plated with gold filigree work of extreme delicacy."

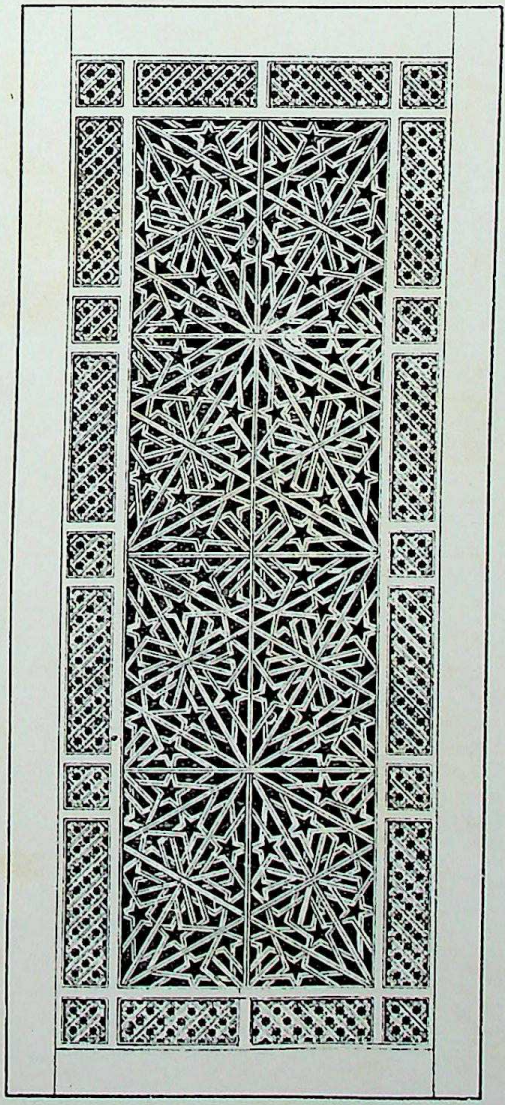
Surprisingly enough, green or white jade was sometimes used for the handles and sheath mounts of daggers, the jade often being inlaid with precious stones. Jasper, ivory, mother-of-pearl, and horn are not uncommonly found in use for making handles and mounts of the smaller weapons.

Wilbraham Egerton writes : "The handles of daggers in Sind are frequently of white glass to imitate rock crystal or inlaid with green glass to replace emeralds. The Kach (Kutch?) axes exhibited at Vienna were decorated with glass instead of jewels."

Suits of armour also used to be made in India and some of the specimens extant are really remarkable in many respects. The Kashmir chain armour is almost reminiscent of delicate lace-work and bears the

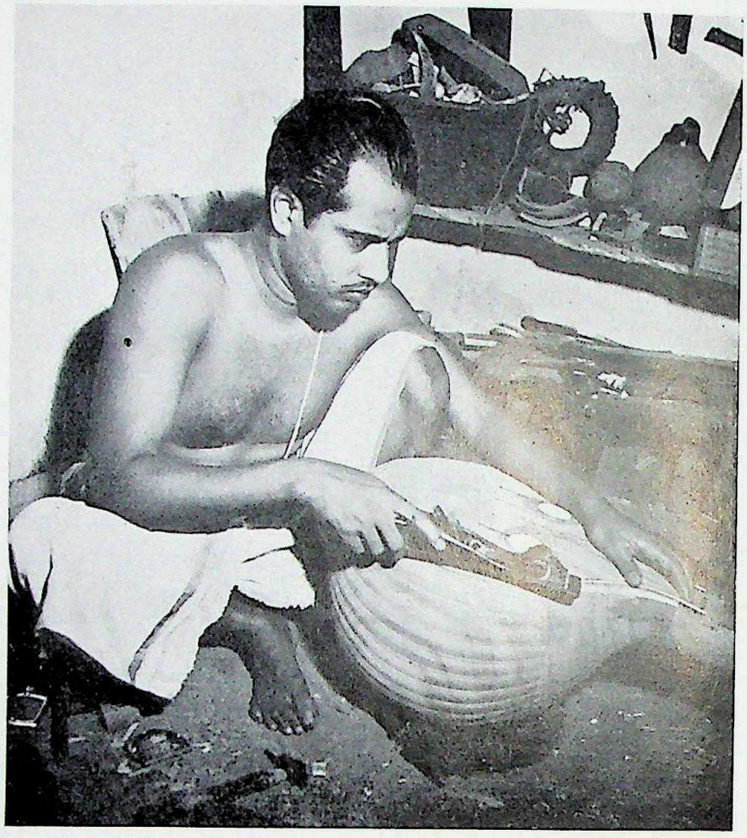






Examples of geometrical wooden lattice panels or *pinjra* work and functional use of such lattices in Anglo-Indian furniture of the 19th Century.
(From *The Journal of Indian Art and Industry*)

1



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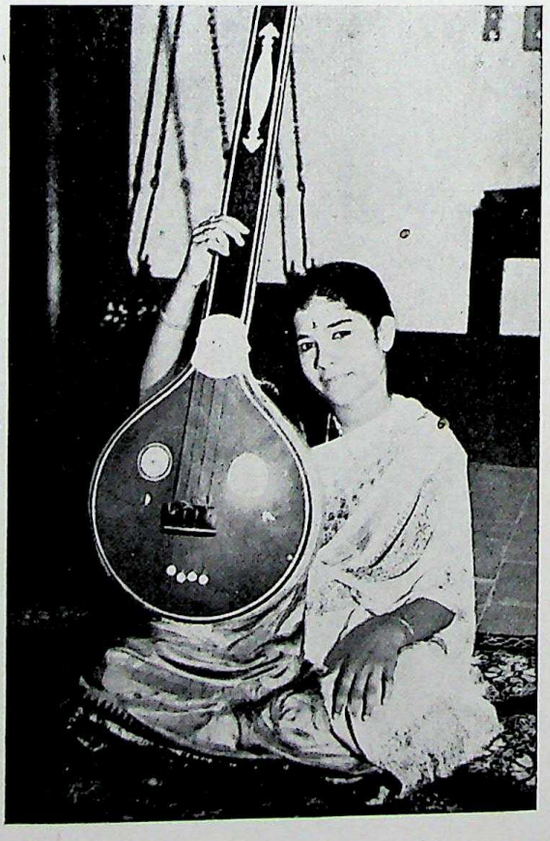

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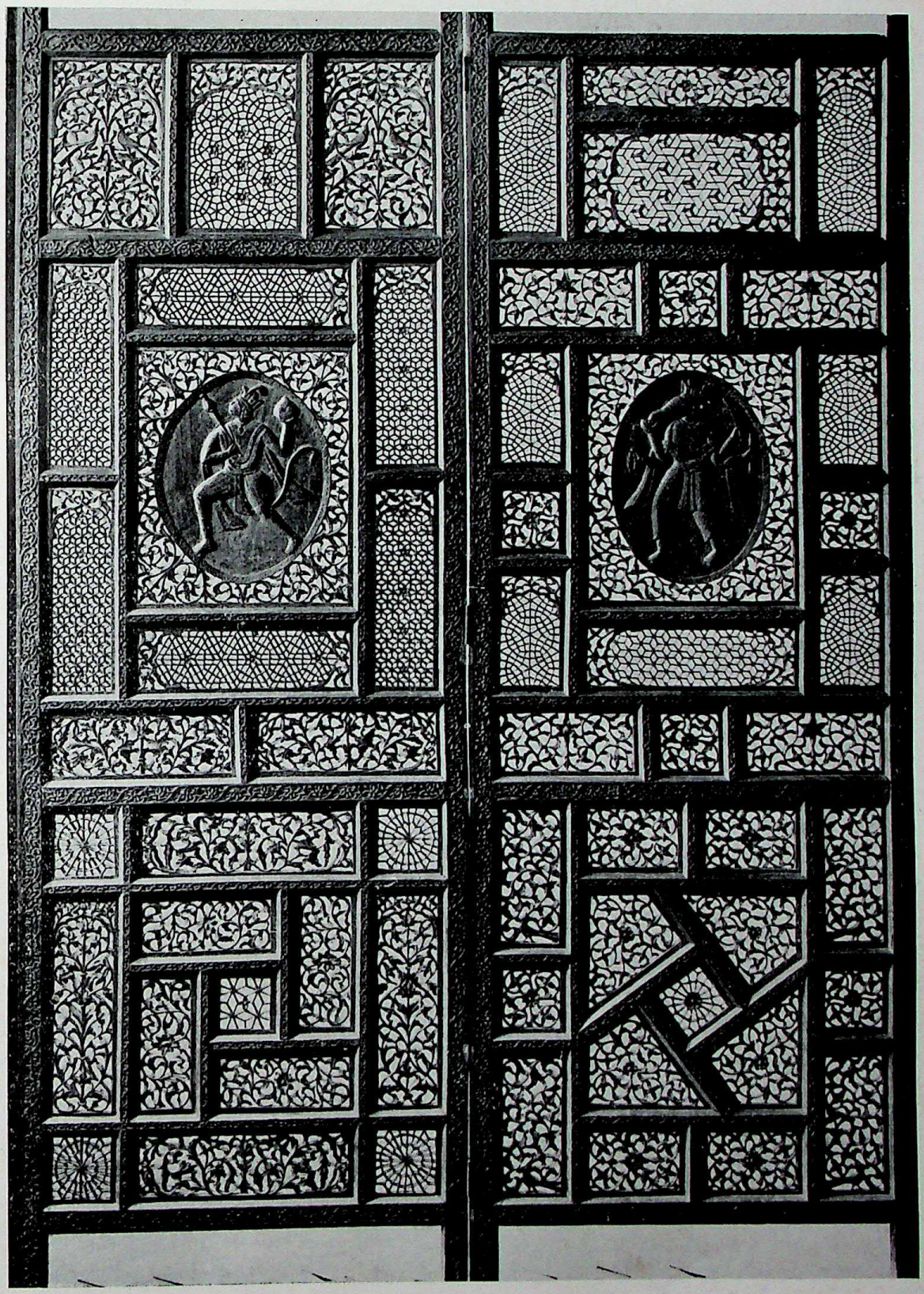
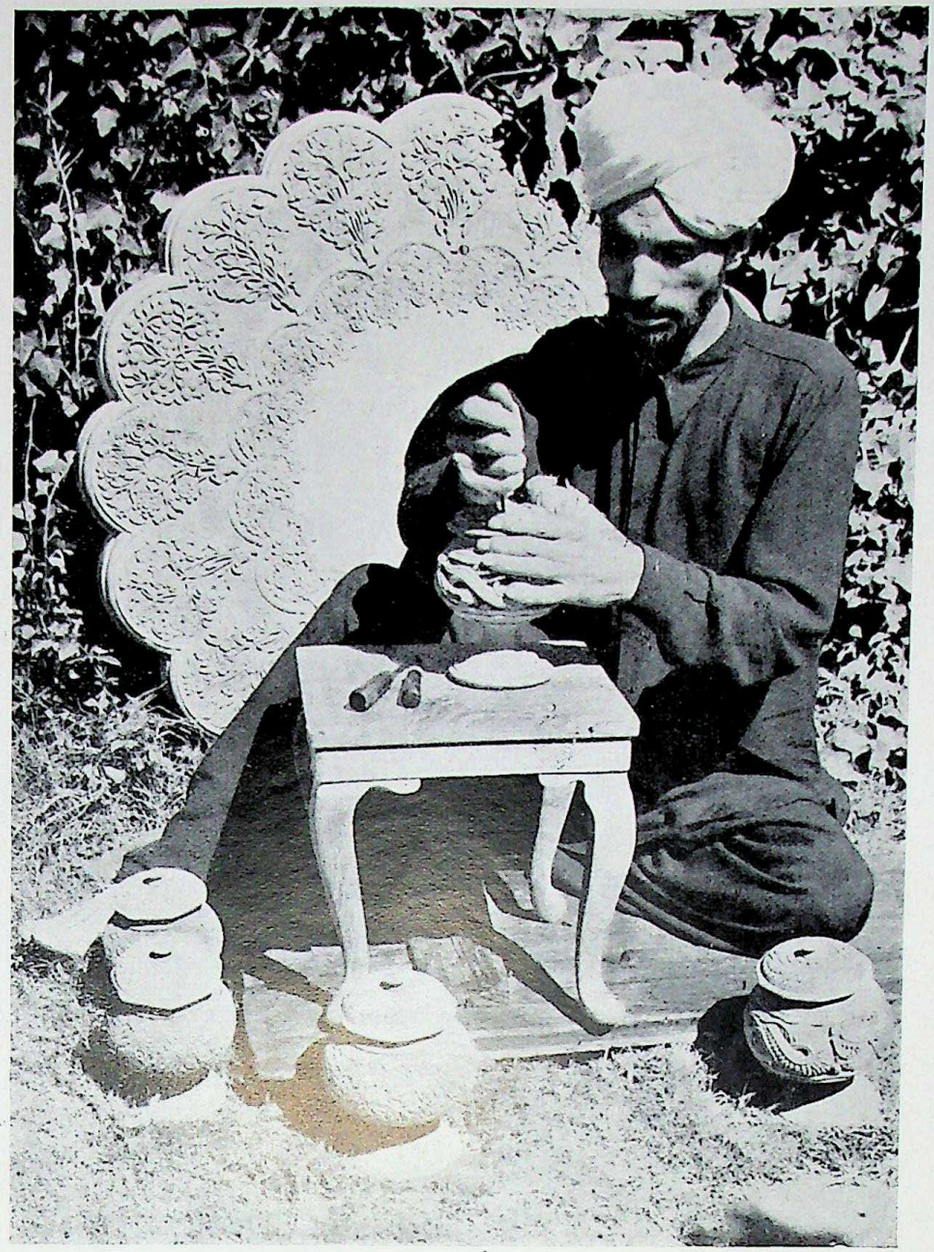
The making of an Indian musical instrument. 1. Jackwood is selected and cut into a square block which is next dug out to form the tortoise-shaped belly of the instrument. 2. The top plate for the tortoise is now made and fitted with gum arabic and then polished. 3. Ribs are cut and the instrument finally polished carefully. 4. Here is a pretty young lady with the finished *tambura*, a sweet-sounding string instrument.

(*Photos : E. S. Mahalingam*)



Part of a wooden tracery screen with open-work carving. 18th-19th Century.
(By Courtesy of the State Museum of Oriental Culture, U.S.S.R.)

(*Photo : R. J. Chinwalla*)



(*Photo : S. G. Pradhan*)

The skilled wood-carvers of Kashmir.

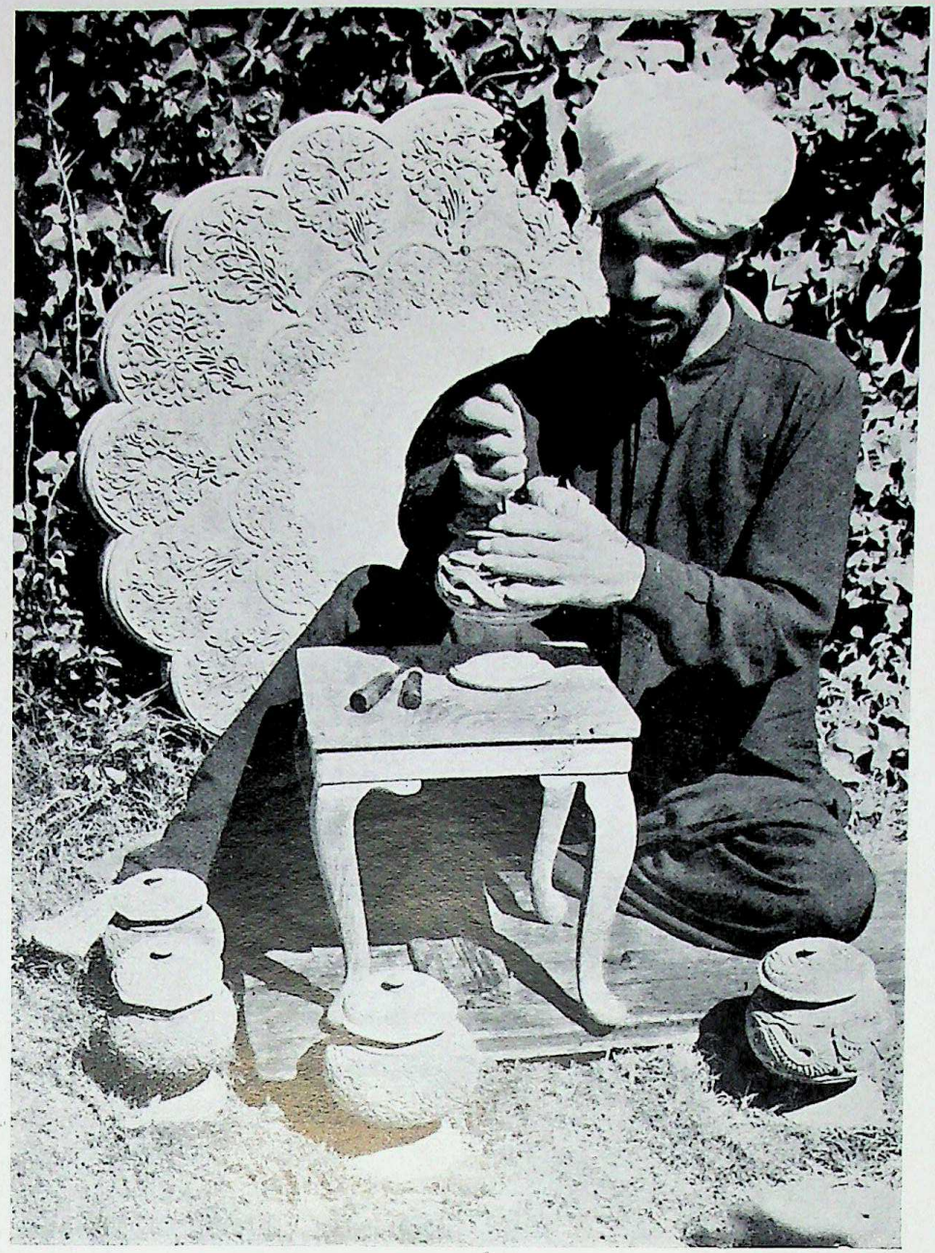
1

2

3

Carved panels from a wooden screen in the Salar Jung Museum, Hyderabad, depicting: 1. Rama and Lakshamana. 2. Siva. 3. Shri Krishna and the gopis.
(*Photos : E. S. Mahalingam*)

(*Photo : R. J. Chinwalla*)



(*Photo : S. G. Pradhan*)

The skilled wood-carvers of Kashmir.

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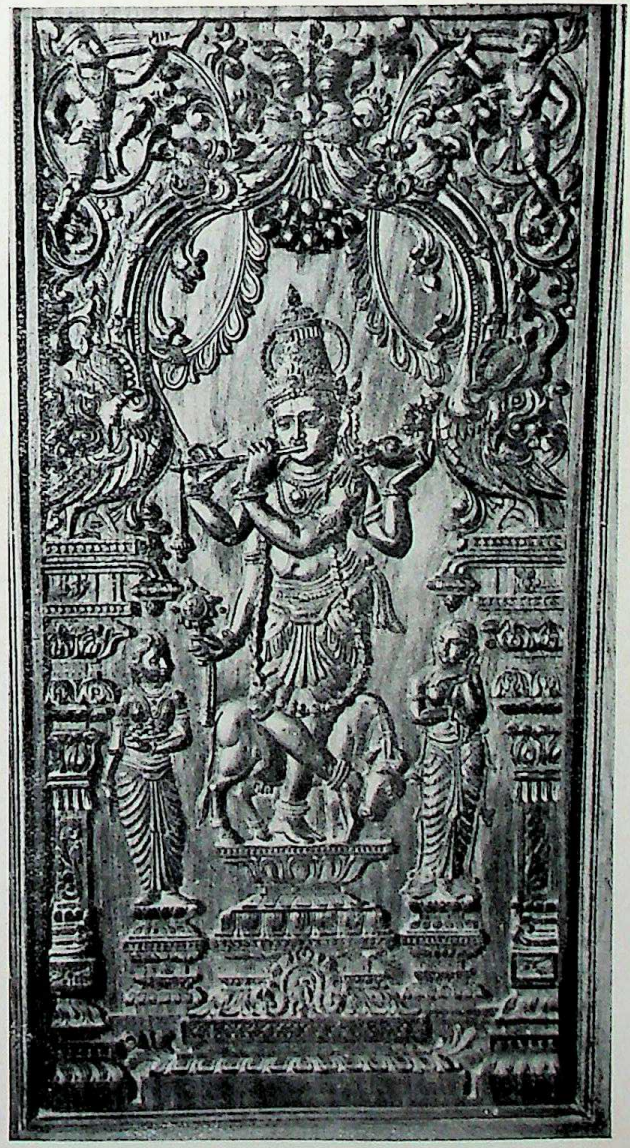

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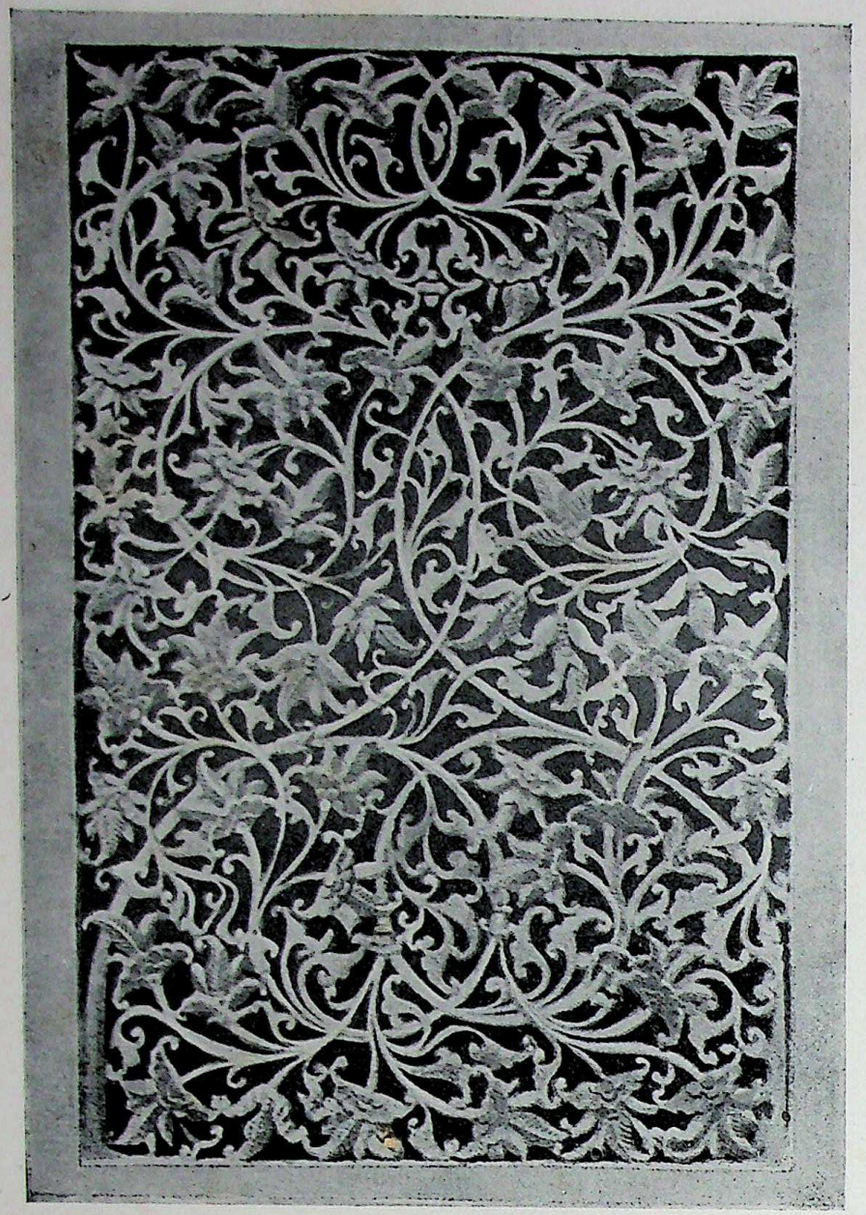
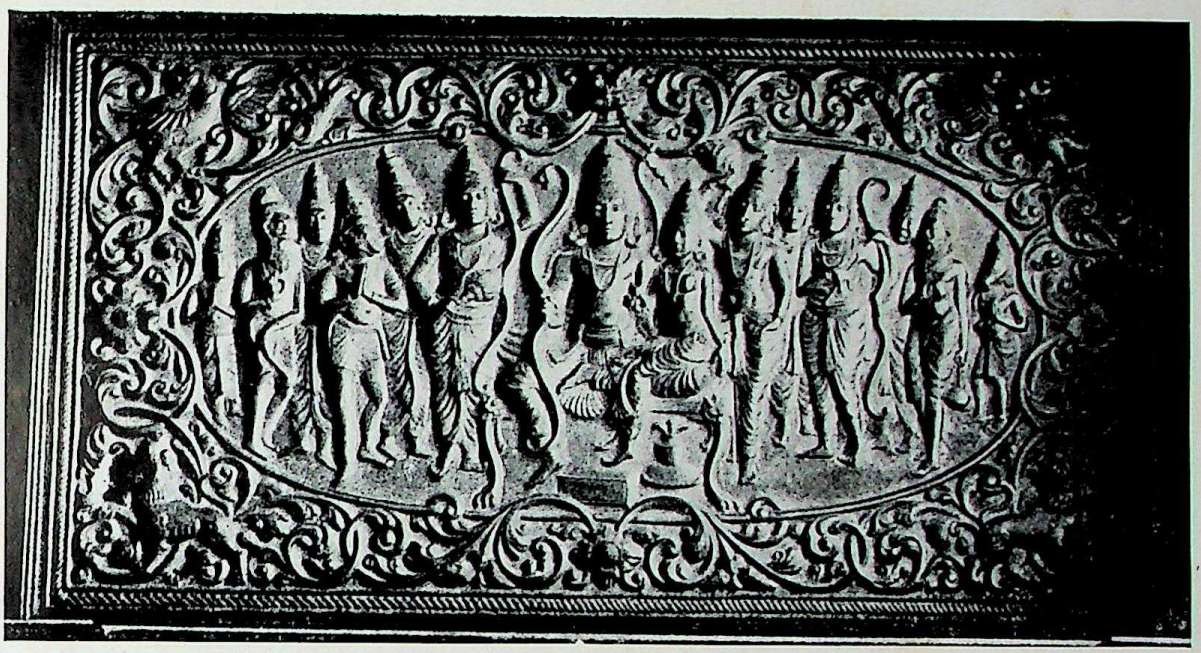
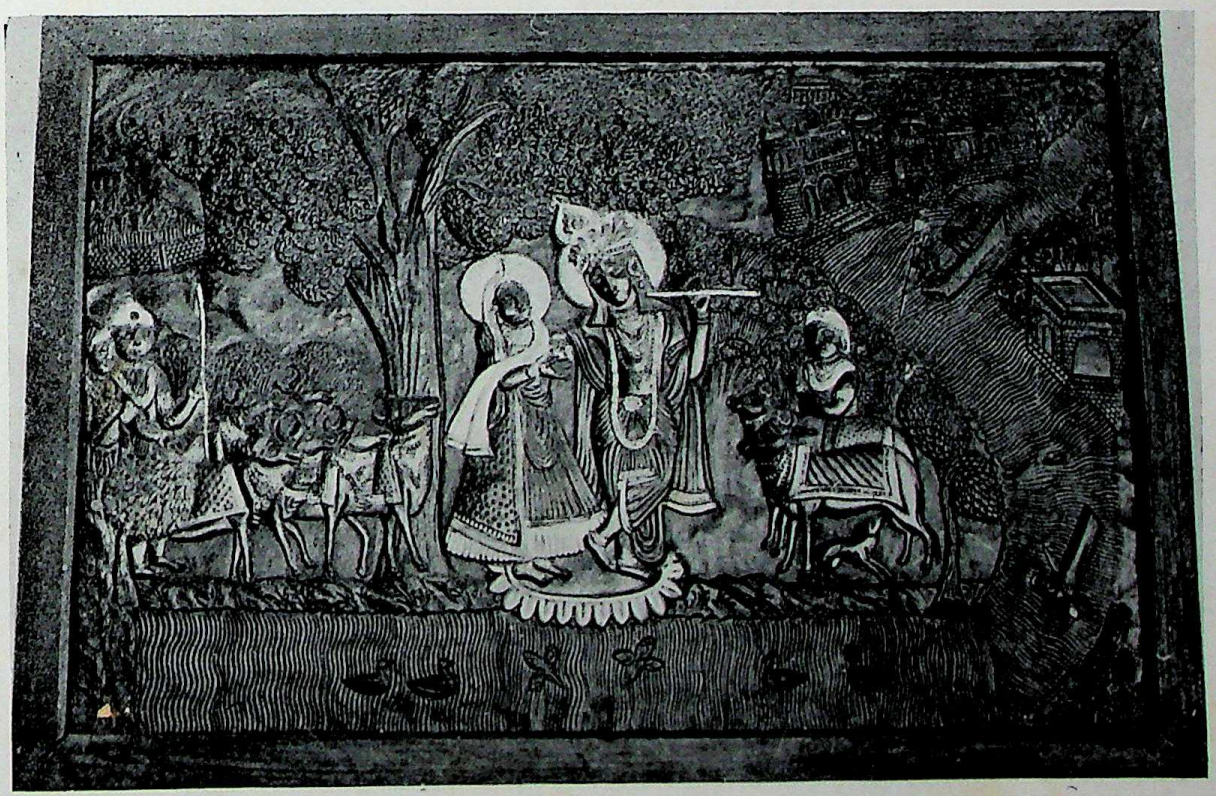
Carved panels from a wooden screen in the Salar Jung Museum, Hyderabad, depicting: 1. Rama and Lakshamana. 2. Siva. 3. Shri Krishna and the gopis.
(*Photos : E. S. Mahalingam*)



Finely carved wooden panel after a famous perforated stone window at Ahmadabad.

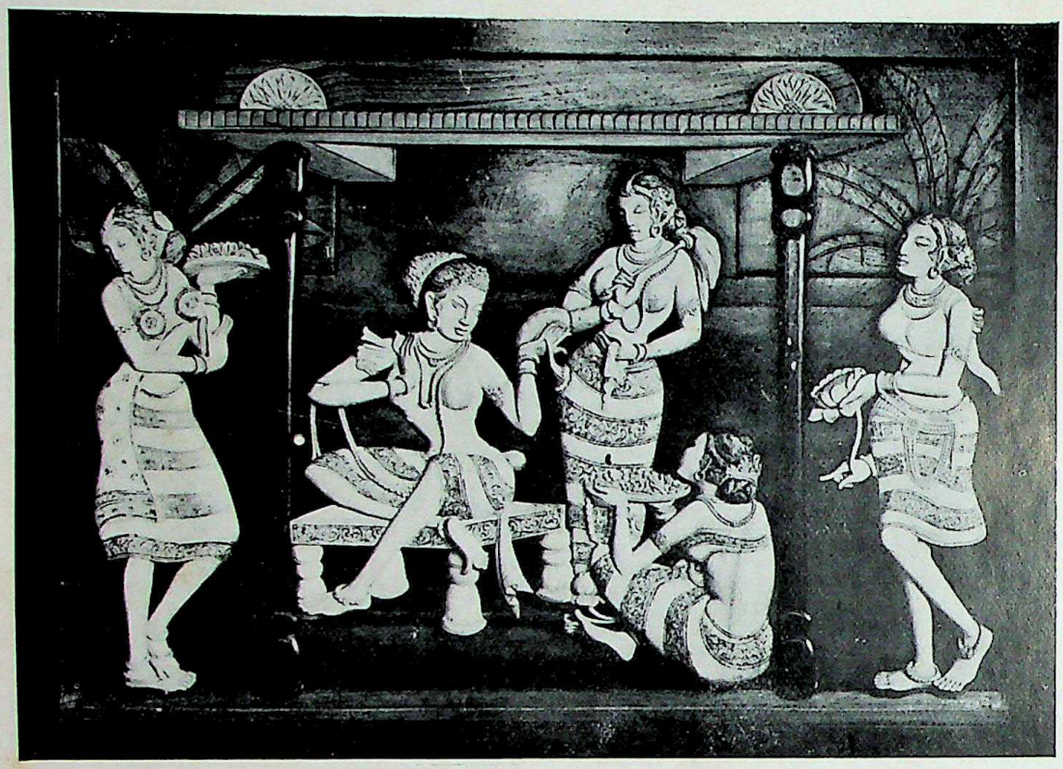
Carved sandal-wood blotter with inlaid borders. 19th Century.
(From *The Journal of Indian Art and Industry*)





Beautifully carved wooden panels from the Salar Jung Museum, Hyderabad. The top panel depicts the Coronation of Rama, with Sita at his side ; the bottom shows Radha and Krishna with his flute.

(*Photos : E. S. Mahalingam*)

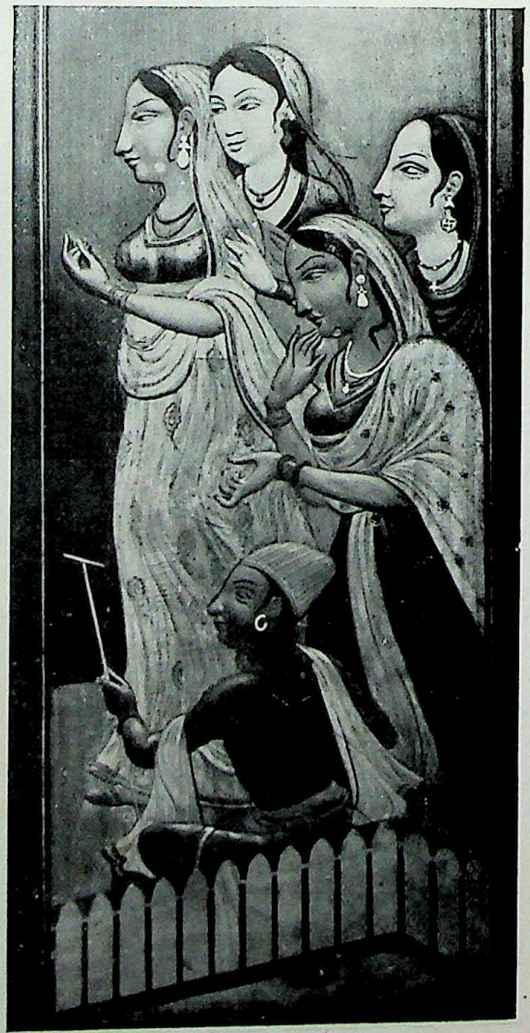


1

Modern wood-carving. 1. An exquisitely carved wooden tray. 2. A wooden panel depicting an elephant in low relief, mounted in a decorative metal frame. 3. Detail of carving from a wooden screen.

(*Photos : A. S. Vaswani*)

2



3

influence of Persia and Circassia. Damascened gauntlets, breastplates, etc., are also well-known. Mention should also be made of the beautiful watered swords with the hilts sculptured with hunting scenes in low relief.

Some of the arms and armour that have come down to us and are today in museums or in private collections both in India and abroad, are superb examples of exquisite gold work in purely Indian tradition, often ornamented with jewels. Sir George Birdwood says, "The splendour of Indian arms and jewellery is due to the lavish use of diamonds, rubies, emeralds, and other bright and colored stones." And he continues : "But, as their work is really manual, and grows up spontaneously, like a growing flower, under their hands, the native jewellers are able to use the most worthless gems on it, mere chips and scales of diamonds, often so thin that they will float on water, and flawed rubies and emeralds, which have no value as precious stones, but only as blobs of color." Many of the Indian arms of the past age show elaborate decoration, repoussé work, cut gold work, and unfortunately sometimes a too lavish use of precious and semi-precious stones.

There is no doubt that the manufacture of weapons in India, especially of Mughal times, bear foreign influence, mostly Persian and Arabian. Persian weapons are exemplified by fine damascening work, enamelling of the hilts and repoussé or carving. Gems are rarely encrusted and when they are, only pearls and turquoises are used. The Arabian arms are devoid of gems but are supreme in their beautiful and delicate filigree work. "No other manufactured article calls into play the use of such varied materials for its decoration, and hence the art displayed in warlike accoutrements deserves special consideration." (Egerton.)

Ornamenting of arms became popular from the beginning of the 16th century onwards and the following few facts chiefly refer to this period.

Floral and geometrical decoration in its purest style is found in the arms manufactured in Kashmir, the North-West Provinces, and the Punjab, both East and West, the traditional designs varying slightly from place to place. The most popular motifs are conventionalised from the common flowers and indigenous birds — the lily, the lotus, the peacock and the parrot. Whenever figures, whether human or animal, are depicted the representation is more realistic than the severely conventionalised forms of birds and flowers. This is especially so in the north as compared to the south of India where the figures are more conventional and sometimes even grotesque. Sometimes, even figures of gods are engraved on the flats of the blades, as well as mounted soldiers, the lion and the tiger, hunting and other similar scenes.

The designs of Madhya Pradesh and the Deccan are generally floral and delicate in outline, though during the Mohammedan regime in the Deccan the designs became bolder and raised patterns, chiselled out of the steel, were popular, exhibiting a definite Persian influence.

Wilbraham Egerton points out : "The large shields of damascened steel offer a rich field for ornament in gold work ; the best of them are made at Delhi and Lahore. In one in the E. Collection, inside the rich arabesque border, tigers and dragons alternate with a small palm or Soma tree. In the centre, where there are usually the bosses which hold fast the handles, there are four lizards or crocodiles in high relief curled up, and in the centre of all the sun with a human face depicted on it. These are all executed with great spirit."

The types of decoration used on arms also vary widely and deserve a brief mention.

Damascening or *koftgari* work is common. The pattern is first engraved in the steel with a fine stylus, punches, etc., all being of a simple character and often quite crude as most of the Indian craftsman's tools are. The gold is drawn into fine wire and gently hammered into the engraved lines of the design. The blade is next heated moderately and finally polished with an agate and cleaned with lime juice. The lines of gold stand slightly superior to the steel background, its glistening and durable beauty lending a peculiar charm to the whole form of decoration.

Enamelling is also quite common on arms and swords and certainly dates from a very early period. The groundwork may be of silver, gold, or even copper. The method of enamelling has been dealt with in a previous chapter and will not bear repetition here. The best form of enamelling of arms comes from Kashmir, the North-West Provinces, Delhi, Lahore, Sind, and of course, Jaipur, the homeland of the most exquisite enamelled jewellery. Wilbraham Egerton draws attention to the fact that while the Chinese enamel is very rarely pure white the ground of Jaipur work is usually of a dazzling white. As an example he quotes the Ankus exhibited by the then Maharaja of Jaipur at the Vienna Exhibition of 1873. "The art of enamelling in other parts of India has not attained the perfection reached at Jaipur, but occasionally beautiful specimens may be found, as shown by the sheath of the Gorkha Kukri, enamelled with flowers in brilliant colours on a blue ground exhibited in the Windsor collection."

Decoration of swords and other arms in the Niello style is definitely of Persian origin, and is rather similar to the Tula work of Russia. The design, generally floral or scrolls, is engraved deeply in the basic metal and the lines of the pattern filled in with an alloy of copper, silver and some lead. Heating and polishing follows, after which comes careful burnishing. This mode of decoration is no longer current in India.

Bidri work has been dealt with fully in an earlier chapter. It is often used to decorate the handles of weapons as well as shields, not only at Bidar, from where the process derives its name, but also in many parts of Madhya Pradesh and other places in the country. Good bidri work will never tarnish or rust

and is very durable in use, for although liable to fracture from a violent blow, it is not brittle.

In Volume IV of *The Journal of Indian Art and Industry,* there is an excellent classification of ancient Indian arms and armour, on which the following is based.

Maces : Usually made of heavy iron. The handle is fitted with a thong to strengthen the grip. The iron head has a series of blunt radiating ribs which may be spirally arranged with a small tip at the top.

Battle-Axes : May be heavy like the modern wood-axe, or may have two-edged points. They may also be double-sided with the blades broad and crescent-shaped. There may be an ornamental scabbard to cover the blade and there may be some ornamentation on the blade itself.

Spears : These are of many varieties, the more recent ones being like cavalry lances. Some of them end in two or three points, but "nothing resembling the heavy mediaeval tilting spear of northern climes seems ever to have been used in India."

Swords and Daggers : The sword may be slightly curved, the *talwar,* or straight, the *khirch.* Large two-handed swords were not apparently used in combat but only in athletic and martial contests. Swords with gauntlets and long blades are peculiar to India. Sometimes the sword blades were given a slightly wavy edge.

There are many varieties of daggers — the straight "Afghan" blade with a broad back tapering to a point ; straight daggers or with a slight curve called *peshkabz ;* small daggers with guard handles, and the *bichhua* or curved daggers. The *katar* or *kuttar* "is a stout triangular blade, the handle consisting of two side-bars and a cross-piece, which is grasped for forward thrust." Daggers are often beautifully decorated.

The scabbards for swords and daggers generally used to be of thin wood, covered with leather or velvet sewn together down the centre with ornamental stitches in gold and silver thread. The hilt and point may be mounted with beautiful gold and silver work. The handles of the arms could be of ivory, jade, bone, even rock crystal and decorated with gold inlay and rubies.

Shields : They are mostly circular in shape. Many of them are of leather with brass studs or bosses on them. The large *dhals* often seen in collections of old Indian arms were mostly made for decorative purposes and were perhaps never actually used. They always have bosses, often of gold and studded with jewels. The leather used for the shields was mostly black polished hide and sometimes a translucent rhinoceros hide of a golden brown colour. In Ajmer it was common for the shields to be painted. The damascened metal shields were invariably for ceremonial use.

This is the Atomic Age. The days of the shield, the dagger and the sword are gone for ever. And though in some remote corners of the country a few daggers and ceremonial swords continue to be made, as an industry, the craft of the armourer can no longer be said to exist.

INDIAN CUTLERY

Indian cutlery comprise very few articles, mostly knives, scissors, betel-nut cutters, bill-hooks, and imitations of European cutlery. Towards the end of the last century it was recorded that betel-nut cutters (*sarautas*) of fancy shapes were made at Karnal in the Punjab, "the handles being of brass with quaint projections in which small mirrors and pieces of coloured glass are fixed . . . Scissors made here are similarly ornamented, the handles being made of brass with bits of coloured glass rudely simulating jewels set therein."

Of course, knives and betel-nut cutters and a few such articles continue to be made for daily use, but there is no art-manufacture of such items in this country and the subject will not therefore be considered any further.

8

FURNITURE AND ORNAMENTAL WOODCRAFTS

Except for the cities and wherever the people have come under Western influence, the Indian temperament is not suited to the use of too much furniture in the home. The simplicity of life in ancient India and the few needs of the people even today must have restricted the development of the art of furniture making and it was not till the reign of the Mughals that the rich aristocracy and the pleasure-loving rulers demanded a better type of household goods. It has been correctly said that "except where the social life of the people has been influenced by European ideas, furniture in India is conspicuous chiefly by its absence." The art-critic, A. Jacquemart, has described India as "the land that has no furniture."

"This does not mean, however, that the wood workers' craft was unknown in India of old," says Dr. Jorge De Andrade. "On the contrary, in our shrines the ornaments and ceremonial arches, the pillars and the beams of the temple-roofs, *raths* and other vehicles for the carriage of religious images were most of them veritable masterpieces which the genius of an essentially artistic and religious race dedicated to the glory of God and not as a means of parading the wealth and the munificence of men, as was generally the case in the Europe of those days, and is even today in the world at large." (*Marg,* VIII, 1, 1954.)

It was mostly during the present century that the use of Burma teak gained in popularity as a fine but comparatively cheap wood for furniture, resistant to the tropic weather and the attacks of insects. But blackwood or *shisham* (*Dalbergia latifolia*) was the wood of choice of the rich in the past, especially for furniture carved in traditional forms. Unfortunately, these pieces though ornate in appearance are definitely unsuited to the modern small home, although as it has been pointed out elsewhere, when this rich dark wood, suitably inlaid or carved, is used for the doors of temples and such like places, the effect is particularly fine and in keeping with the subject and the place.

The skilled carpenters of Ahmadabad and nearby places were especially prominent in the use of blackwood which they also used for carving smaller articles like teapoys, ink-stands, wooden vases, trinket and other boxes, etc., and in the houses of the old families in Ahmadabad fine specimens of blackwood furniture and other articles can still be seen. This dark and hard wood was most used for making low sofas, tables and chairs, bedsteads, chests of drawers and cupboards, the articles of furniture mostly to be seen in an Indian home.

Blackwood was also used in the south, especially for making furniture of European design, in the last century and early twentieth and some fine pieces can be seen even today.

In Bengal — Monghyr being a centre for furniture — the wood most used was *tal* or *tad* (*Borassus flabellifer*) as well as ebony and here too furniture of a distinctly European style was common. Bombay, of course, is the most westernised and cosmopolitan of the cities of India and the households of the educated rich are filled with European type of furniture, mostly in inferior wood, especially since the Second World War, as Burma teak has risen in price much above what can be afforded by the middle classes. This has led to the wider use of the Indian teak — a much inferior wood in every respect and lacking both the rich graining of the Burma variety and its durability.

Perhaps the most expensive of the woods is sandalwood, considered the most auspicious, but hardly suitable for furniture due to its high cost and soft nature. But it is widely used for smaller pieces like small tables, boxes, screens, especially where carving is contemplated, or when intended to be inlaid with ivory.

Though the Indians of old used hardly any furniture, it is clear from ancient texts, that the properties of different woods were known and the specific uses of each for different purposes laid down as precepts. In the *Brihat Sanhita,* a celebrated old work on astronomy by Varaha Mihira and written probably some time in the sixth century, the following woods have been mentioned as those most highly prized for household goods :

The Laurel (*Terminalia tomentosa*); Blackwood (*Dalbergia latifolia*); Sandalwood (*Santalum album*), known as *chandan, sukhad,* or *chandal* ; Ironwood tree (*Mesua ferrea*); Pine (*Pinus deodara*); Woods of the *Diospyros species* (probably the Wild Mangosteen), Sal (*Shorea robusta*); *Gmelina arborea* ; Champa (*Michelia champaca*); Teak (*Tectona grandis*).

A fact worth noting is that the two woods in popular use since the last century are not mentioned in this list. They are, the Indian Mahogany or Red Cedar (*Toona ciliata,* Syn. *Cedrela toona*) and the Jack Fruit or *phanas* (*Artocarpus integrifolia*).

Not only do the ancient works mention the woods to be used, but the *Silpa-sastras* actually give detailed instructions on how to fell the different timber trees, in what seasons, and even how to season the timber to prevent cracks and unequal drying. Prohibitions have been laid down against the use of wood of trees struck down by lightning, storms or knocked down by elephants and floods ; trees that have fallen towards Yama, the god of death's quarter — the south — and those which grow on burial or burning grounds or where large rivers meet ; those growing by the side of public roads are also prohibited for use. Not only that, but even those trees the upper branches of which had withered or had been strangled by heavy creepers,

and those in which many birds had built their nests, should not be used according to the tenets laid down in the ancient works on architecture and mechanics.

Some of the woods used in India today for furniture, general carpentry, turnery, carving, etc., are :

Tectona grandis (Teak) — furniture, turnery, and whenever durability is required.

Syzygium cumini syn. *Eugenia jambolana* (Jaman, Jambul).

Dalbergia latifolia (Blackwood, Shisham) — furniture, carving, door and window frames of temples, large houses, etc.

Terminalia tomentosa (Laurel, Saj) — house-building, boats, furniture, toys, agricultural implements.

Cedrus deodara (Himalayan Cedar, Deodar) — wood strongly scented and oily ; furniture, carving, musical instruments.

Dysoxylum amlabaricum (White Cedar) — cabinet work, tea chests, boxes, furniture.

Bischofia javanica (Red Cedar) — furniture, boats, bridges, buildings, wheels.

Artocarpus integrifolia (Jack Fruit Tree) — carpentry, furniture, boxes, turnery and all kinds of cabinet work, musical instruments, boats.

Shorea robusta (Sal) — cheap substitute for teak.

Chloroxylon swietenia (Satinwood) — furniture, turnery, fancy work, veneering, brush backs, carving.

Lagerstroemia flos-regina (Arjuna) — furniture, boats, casks, constructional work.

Lagerstroemia lanceolata (Nana Wood) — building purposes, carts, boats, turnery, furniture, agricultural implements, general carpentry.

Albizzia lebbek (East Indian Walnut) — furniture, general carpentry, carving, turnery, decorative work.

Toona ciliata syn. *Cedrela toona* (Indian Mahogany) — furniture, carving, cigar boxes, tea chests, toys.

Pterocarpus indicus (Padauk) — furniture, ornamental work, door and window frames. Used in America and Europe for pianos.

Adina cordifolia (Haldu, Karam) — turnery, furniture, combs, toys, carving, cigar boxes, agricultural implements.

Michelia champaca (Champa) — furniture, plankings, door panels, boats.

Mimusops elengi (Indian Medlar) — furniture, construction work, general carpentry.

Chukrassia tabularis (Chittagong Wood) — veneering, panelling, carving, furniture, pianos.

Jugulans regia (Walnut) — carving, lacquer work, small furniture, musical instruments.

Diospyros melanoxylon (Coromandel Ebony) — tool handles, building work, carpentry, carving, fancy articles, decorative work, brush backs, combs, toys, inlay work, walking sticks.

Diospyros ebenum (Ebony) — furniture, carving, turnery, brush backs, inlay work, cabinet work, veneering, decorative handles, walking sticks.

Among the other timbers used primarily for furniture and superior cabinet work are : *Abies pindrow* (Himalayan Silver Fir), *Carallia brachiata* (Carellia Wood), *Cassia fistula* (Indian Laburnum), *Melia azedarach*, *Salix tetrasperma* (Indian Willow Tree). The last is used for fancy work, furniture and as wood for pencils.

The four-post bed which came into use with Western influence was unknown in ancient India, but only the Indian *charpai* or low cot, being a rectangular frame of wood, roped across for the mattress. The rich gentry preferred the cots to be strung with broad bands of tape plaited across the frame or covered with wood or even ivory if it could be afforded. In such cases the framework and even the planks were richly carved or lacquered, the latter especially in Sind and the Punjab.

Chairs, as we know them today, are apparently a foreign importation as they were not in use in India of past centuries ; but they were not unknown as thrones for kings and emperors. The *Rig Veda,* the *Mahabharata* and the *Ramayana* all mention thrones made of solid gold. The ancient Indian names for thrones was *rajasana* or *rajapatra*, or were called "lion-seats" — *sinhasana* — a term probably derived from the practice of carving lion figures on the supports. In the same way, a throne with supports carved in the form of the lotus was known as *padma-sinhasana ;* if with an elephant, *gaja-sinhasana ;* with a conch-shell, *sanka-sinhasana ;* with a goose, *hamsa-sinhasana ;* with antelope, *mriga-sinhasana ;* and if with a horse, *haya-sinhasana*. From these terms, it seems that by secondary derivation, the meaning of the word *"sinh"* or "lion" was lost, and the *sinhasana* came to be meant a "throne".

Garudasana was the name given to a throne supported by Garuda, the vehicle of Vishnu; in the same way, it was called a *Brishansana* if supported by Nandi, Siva's bull; and *Kartikeyasana,* if held up by a peacock, the vehicle of Kartikeya, the god of war.

Supplementing the wood, silver, copper or gold were allowed to be used in the making of thrones, but iron was prohibited. Stone could be used if it was not gritty sandstone and if its colour was that of the planet presiding over the destiny of the personage for whom the throne was destined. Thus, blue-coloured stone was to be used for a person born under Saturn and a yellow stone if presided over by Venus. The use of crystal was freely allowed.

The famous "Peacock" throne of Delhi has almost become a legend. It is supposed to have been made for Shah Jahan sometime between A.D. 1628 and 1635 and took its name from the peacock with a spreading tail which is said to have adorned it. It was resplendent in natural colours and the lavish use of emeralds, rubies, sapphires, topazes and bright enamels, the throne itself a scintillating mass of flash-

ing diamonds and other precious stones.* It is known to have been carried away by Nadir Shah after his sack of Delhi in A.D. 1739, with which also went much of the wealth of the Imperial capital.

Shanti Swarup writes : "Today cabinets, writing boxes, pen-trays of ebony as well as palm and arecanut are made at Monghyr ; tables, chairs, and other furniture at Bareilly ; while wooden bowls, cups, oval boxes, painted in colours, are manufactured at Banaras with the deliberateness of an art which leaves nothing to be desired. The artisans of Nagina in the district of Bijnore specialise in floral designs delicately chiselled in ebony on boxes, pen cases, ink stands, and book covers. Wooden cradles, carved, coloured and gold gilded and used for singing gods are made at Jodhpur."

The art of veneering, so popular in the West, is no longer practised to any extent in India, except by the large furniture-making companies catering to a westernized taste in the large cities. This is really no craft for the humid climate of many parts of this country, and the city-made veneered pieces of furniture generally suffer from the effects of damp and seasonal temperature variations.

However, it must not be supposed that the art of veneering is unknown to our craftsmen. In the past, and to a certain extent even today, not only wood veneers, but sandal-wood, ivory, horn, and tortoise-shell have been veneered on surfaces made of inferior woods. The art reached high proficiency in Vizagapatam where are produced tables, boxes of all kinds, dressing cases, jewel caskets, picture frames, glove boxes, and many other articles of a small nature. But the work is not carried out on large pieces of furniture except in the cities as stated above.

Ivory, whether veneered or appliquéd on inferior woods may be either carved, resembling then almost solid carved ivory, or designs engraved on the ivory and filled with lac of different colours as explained more fully in the chapter on inlay work. Ivory appliqué work is another speciality of Vizagapatam in the south. Thin sheets of ivory, ornamented with coloured lacs or by fine carving, are fixed to wooden boxes and other articles by means of tiny pins made also of ivory or silver. The ivory may be fret-sawed instead of carved in some cases. The articles thus appliquéd may previously be veneered with tortoise-shell, horn, or sandal-wood. Thus a box first veneered may have ivory appliquéd on it to simulate the large hinges of ancient caskets, or the ivory may form decorative panels and medallions.

Marquetry work, which is really not true inlaying, is as common in India as in Europe and America and other parts of the world. Often known as *sadeli* work, it is common in Bombay, Surat, Ahmadabad, and Baroda. The materials used for the marquetry designs vary widely from ivory and horn, either uncoloured, green or blue, ebony wood, redwood, tin, silver and rarely even some other metals.

As in true inlay work, the materials to be used are first cut into long thin strips and glued together in such a manner that on transverse sectioning they provide geometrical figures and varied shapes. "Thin strips or veneering ribbons are thus made by transverse section on a series of parallel strands and these ribbons are then glued to the surfaces of the boxes, cabinets, etc., as desired. Sometimes panels of richly carved sandal-wood or of black ebony, are framed in *sadeli* work, or at other times the surfaces of the cabinet or other article are entirely covered with *sadeli*." (Sir George Watt.) From this it will be apparent that marquetry is not used to produce more or less naturalistic landscapes and other scenes as is rather popular today with amateur craftsmen in the West, but the designs are more in line with the orthodox inlay work.

At Etewah, in what used to be Kotah State before Independence, a really beautiful form of marquetry was once produced. Veneers of horn were built up by pieces of ivory and mother-of-pearl being inlaid in the horn. These special veneers were then fixed to boxes and other articles made of *shisham* or sandal-wood. Sometimes diamond-shaped pieces of buffalo horn, ornamented with ivory and mother-of-pearl, were veneered together to form unusual diaper patterns. The ivory used was highly ornamented with floral designs in black lac, and even the mother-of-pearl would sometimes have a few coloured spots or lines made on them to better define the flower or leaf represented.

Everyone is aware of the wooden lattice or *pinjra* work so common in this country, especially in the north, and with such varied designs. This work has been very aptly described by Sir George Watt as "lattice work built up of minute laths arranged in geometric forms so as to display their edges. They are held in position by the pressure they exert one against the other, by certain lines being dowelled together and by the frame of the panel within which assorted." The lattice laths are rarely if ever glued together, but are so accurately fitted that they do not come apart even when the frame in which they are fixed is removed.

Painted furniture and other articles of domestic use is popular even today to a certain extent, especially in the traditionally Indian style of furniture that is coming back in fashion among the city rich. This is known as *kamangari* work, after the word *kaman*, a bow, on which this kind of painting used originally to be done. Today, furniture, boxes, trays, chests, caskets, etc., are generally made, and J. L. Kipling's description of the work is enlightening :

"It is invariably water-colours protected by a varnish. Sometimes true gold is used to heighten the

* The throne was constructed under the superintendence of Bebadal Khan in the course of seven years. It was in "the form of a cot bedstead on golden legs. The enamelled canopy was supported by twelve emerald pillars, each of which bore two peacocks encrusted with gems. A tree covered with diamonds, emeralds, rubies, and pearls stood between the birds of each pair. The gorgeous structure, which cost at least a hundred lakhs or ten million rupees, equivalent then to a million and a quarter pounds sterlings, continued in use until 1739 when it was carried off to Persia by Nadir Shah." (Vincent A. Smith, *The Oxford History of India.)*

effect, and it is occasionally punched and otherwise treated, but more frequently a ground of tinfoil, or of tin levigated, and used like European shell gold or silver, is laid as a preliminary. Over this transparent and semi-transparent colours acquire a sheen, and where the foil is left uncoloured, yellow or white varnishes produce the effect of gold or silver. In bows from Multan and other districts show the original and still existent form of the art, and the linen chests and bedlegs from Delhi, its modern practice."

As was mentioned before, very little furniture was common in India of olden days, and its production received its chief impetus after the infiltration of traders from the West into the country. This is seen at its clearest in Goa where Portuguese influence was the greatest. Apparently little furniture was made before the pre-Portuguese period, except perhaps for chests and *bahuts* (chests with curved lids) in which were stored the family's few precious possessions. "They were pieces of exquisite decorative beauty, extremely well carved, particularly when made of sandal-wood, often displaying representations of wild animals, like the head of a tiger — the king of the Indian jungle — and at other times mythological symbols, gods and deified animals, like the monkey and the cobra, and all too often that 'favourite flower of the gods' — the lotus flower." So writes Dr. De Andrade. When made of light wood, the chests were often painted in various colours with gum-lac.

In the beginning of the sixteenth century, Portuguese rule was established in Goa, and the Indian craftsman turned his hand to making other needed articles like tables and chairs, cupboards, bedsteads, etc., using the older techniques of carving, inlay work and lacquer. To quote the same authority again, "Several European museums possess not a few of these treasures, which furnish an irrefutable proof of how the genius of the Goan artisan adopted an entirely new style, so completely foreign to his own artistic temperament, without sacrificing in the least his own inherited aesthetic personality, thus creating the new classical Indo-Portuguese style of furniture." The Dutchman, Lischoten, who visited Goa in A.D. 1583 subsequently wrote of "a street for those who made beds, chairs, and other articles of joinery, which were covered with *laca* or hard wax, of various colours, presenting a goodly appearance."

Dr. De Andrade calls the 17th and 18th centuries, particularly the latter, "the golden age of Goan furniture." Now came a refinement of taste, the slow ebb of Portuguese styles and the influence of French types of furniture. Increasing numbers of chairs, beds, tables, settees, benches, chest of drawers, and stools were produced. The wood used was the teak, ebony or blackwood, and inlaying with ivory, bone and rosewood became common. Preference was also shown for the making of articles of furniture of a religious use like choir-stands, credences, church benches, and such other pieces not primarily meant for domestic purposes.

The nineteenth century saw the influx of British ideas and the development in Goa of an English style of furniture. "Its acceptance was obviously conditioned by the fact of its regard for comfort and practicability ; allied as this regard was to good taste, a perfect sense of proportion and an admirable simplicity of line and detail."

MUSICAL STRING INSTRUMENTS

It is said, "Indian musical instruments are remarkable for the beauty and variety of their forms, which the ancient sculptures and paintings at Ajanta show have remained unchanged for the last two thousand years."

The presiding deity of music is Sarasvati, the Goddess of Learning and the Arts. The sage Narada was considered an expert in the field of music, and many ancient manuscripts on the art and science of music once existed, but which were unfortunately lost even before the Mohammadan conquest of the country. The great Emperor Akbar was a lover of the aural arts and surrounded himself with famous musicians, the greatest of whom was Tansen, one of "The Nine Gems" of Akbar's Court, whom the Emperor immortalised with a small but most elegant mausoleum at Gwalior. By it grows the famous tamarind tree, much visited by singers as it is believed that the chewing of its leaves imparts a wonderful sweetness to the voice.

There are about 500 Indian musical instruments — stringed, percussion, wind, and miscellaneous instruments like bells, cymbals, etc. — and most of the early varieties still remain in use, their forms having hardly altered in the last two thousand years.

The manufacture of musical instruments is an industry and therefore does not rightly belong to this book. However, mention is being made of string instruments as they are often richly ornamented with ivory, silver and other materials, especially in the form of inlays.

Musical instruments are today made in almost every large town and city of India, but the chief centres may be said to be Calcutta, Murshidabad, Lucknow, Banaras, Rampur, Delhi, Amritsar, Miraj, Tanjore, and Lahore and Dacca in Pakistan.

Perhaps the most ancient of the stringed musical instruments is the *kachchhapi vina* or the *kachua sitar* as it is also called. The bowl is shaped like a gourd and flat like the back of the *kachchhapa* (tortoise). Today, it is better known as the *sitar* (literally, "Three wires"), the name given to it by Amir Khushru, the famous poet and musician of the 13th century. At present, the strings or wires used may even be five to seven. These instruments are sometimes made entirely of ivory. If made of wood, they are very often charmingly and elaborately inlaid with ivory or silver. or else painted in gold and other colours and varnished. The same applies to the majority of Indian stringed musical instruments. It is reported that the *kinnari vina* was sometimes made of precious metals.

In the making of the *mahati vina,* commonly called the *been,* in South India, the body is hollowed out of fine jackwood, with a belly of the same wood. To this is attached a long neck like that of the guitar and has a gourd fixed at the upper end to increase the volume of sound produced. The strings of wire number seven, four of them mounted over a bridge and furnished with frets. Three wires run along the side of the neck over an arched metal bridge. The North Indian *been* however has six strings, and nine sympathetic strings called *tarb.*

It is unnecessary to mention the different stringed musical instruments of India as long as it is remembered that very often they are beautifully inlaid or decorated in other ways.

WOOD-CARVING IN INDIA

Wood-carving is definitely a very ancient craft in India, for it is certain that it was practised in this country long before sculpture in stone, which itself is of very ancient lineage, going back to pre-Mauryan times.

Wood-carving was and is widely used today, the stress these days being on small pieces of furniture and articles of daily use like teapoys, screens, boxes, trays, pipe-racks, book-ends, ink-stands, cigar boxes, jewellery caskets, etc. It is not so much used at present on large furniture, due perhaps to a fall in demand for such. The carpenter of ancient India however not only carved bedsteads, wooden seats and thrones but also chariots for the purposes of war. Ornately and beautifully carved wooden doors can still be seen in many places testifying to the heights to which the craft had reached in early days.

Perhaps the places best known for rich ornamentation, skilful execution and characteristic designs are Kashmir in the north, Gujarat in the west, Rajasthan, and Mysore and Travancore in the south. The beautiful geometrical and floral carved designs of Kashmir are now world famous. Not only do they ornament small articles, but also river house-boats and ceilings. Mention should also be made of the elaborately carved *raths* (temple-cars) of South India, the beautiful carving in the old palaces of Rajasthan, and the woodwork of temples in Gujarat and Kathiawar.

At the present time, Bhera and Amritsar in the Punjab are well-known for carving in *shisham* and carved tables, chairs, beds, screens, etc., are currently made. Nagina is still a centre of a graceful style of carving in ebony. Here tables, chairs, caskets, walking sticks, picture frames, and many other small articles, richly ornamented, are regularly turned out.

The carved woodwork of the Ahmadabad and Gujarat carpenters is justly famous. The finest example of their work, elaborate and intricate, yet aesthetically perfect, is to be seen in Rani Sipri's tomb and the mosque of Sidi Saiyed, both in Ahmadabad.

It has been said, "The art of wood-carving in Mysore and Coorg is a mixed form of indigenous and Chalukyan art. It is a decorative art mostly using celestial forms. Madurai was long famous for a simple and elegant style of incised blackwood tables. The design was made by means of a pair of compasses, while the legs were in the form of elephant heads with extended trunks. But now Burmese and other styles are followed and the Yali figures of the great temple are copied for the legs of the tables. Malabar turns out charmingly engraved cocoanuts."

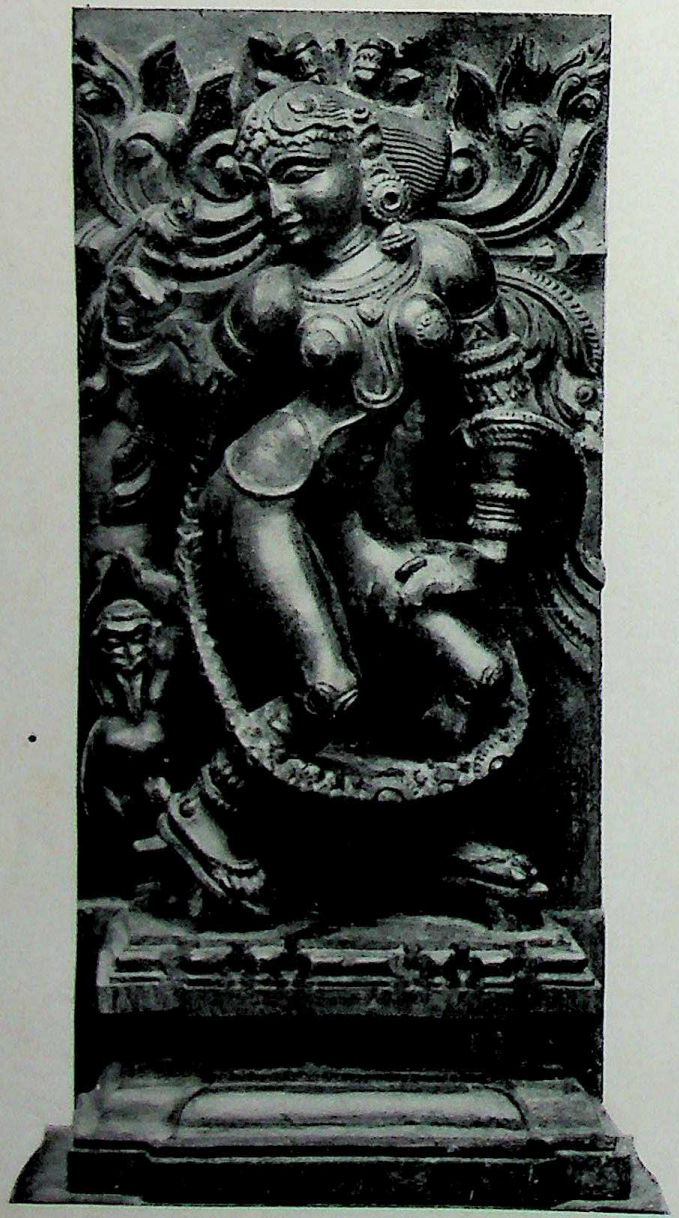
Walnut trees grow abundantly in Kashmir and so carving on this rich, medium-soft, delicately toned wood is a speciality of the place. It is really unrivalled in a way and the screens, cabinets, picture frames, tables, boxes of every kind, and such other small articles, all in carved walnut wood, are in a class by themselves. The minute and perfect floral designs, delicately carved in low relief, adorn table tops, cigarette and cigar cases, pipe-racks, trays, jewellery caskets, table lamps, handkerchief boxes, etc.

"The art conceptions seen in woodwork have been greatly influenced by the grain of the timber employed," observes Sir George Watt, "such as the deep under-cutting and sculpture that is possible with teak, red-wood and walnut, the low relief of *shisham* and *deodar,* the incised designs of ebony, the intricate and minute details of sandal and the barbaric boldness of *rohira, sal* and *babul* (*kikar*) and other coarse grained and hard woods."

In India, wood-carving is used in architecture as well as in cabinet-work ; and though later on wood-carving in architecture has been given a separate section to itself, it is very difficult to separate the two, and as far as the styles are concerned, both will be dealt with as one here.

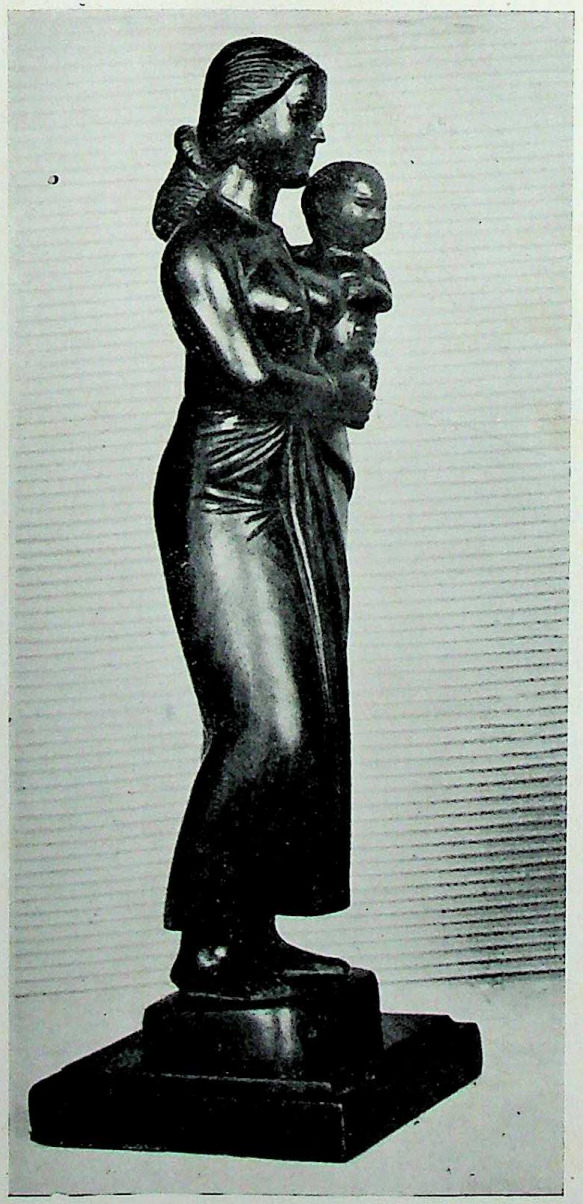
The united Punjab of old has always been famous for its wood-carvings, the chief centres being Amritsar, Bhera, Chiniot, Hissar, Hoshiarpur, Jullundar, Lahore, Ludhiana ; besides, nearby centres like Peshawar and of course Kashmir, could all be considered together. The work turned out by the Hindu, Mohammedan, and Sikh artisans is chiefly in *shisham* or *deodar,* the Himalayan Cedar (*Cedrus deodara*), in fairly low relief and with hardly any under-cutting ; the latter does not apply to the present-day work of Kashmir where deeply under-cut and intricate designs are often used, and walnut wood is employed freely. The patterns may be floral or exhibit mythological subjects and grotesque animal forms in the case of Hindu and Sikh work. Arabesque designs are common in Udaki. Peshawar also excels in minute and elaborate work in walnut wood, called *pinjra* work. But recently in Kashmir this has given place to realistic designs imitating floral sprays and other natural objects, undoubtedly exhibiting greater technical skill, but little artistic appreciation.

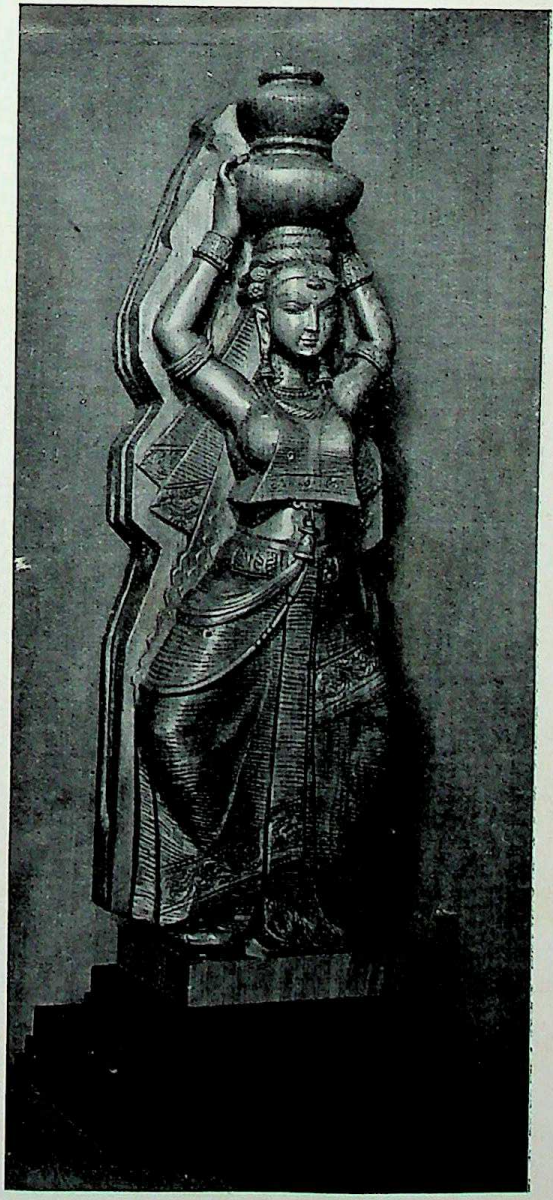
In the northern province of Uttar Pradesh, some of the centres of wood-working are Aligarh, Azamgarh, Bareilly, Nagina (Bijnor), Bulandshahr, Ghazipur, Lucknow, Mainpuri, Mathura (Muttra) Saharanpur, etc. The woods most commonly used are *shisham* and *sal* (*Shorea robusta*) for carving, and also ebony, *nim,* and whitewood for furniture making. Nagina exhibits a very graceful style of carving in ebony, and many articles like tables, chairs, boxes, walking sticks, caskets, picture-frames, etc., are annually produced. The decoration is chaste, delicate and crisp, almost



Siva in the image of a young woman. Ebony wood carved in high relief. 17th–18th Century.

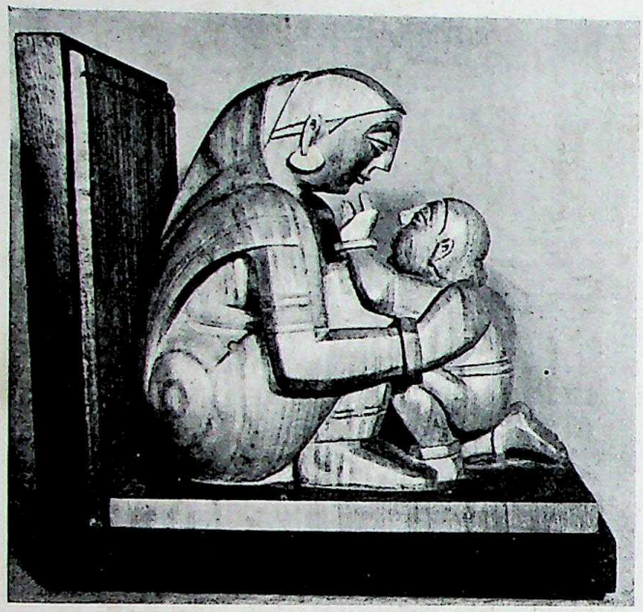
(By Courtesy of State Museum of Oriental Culture, U.S.S.R.)





Examples of modern wood-carving in the round. The figure in the centre is from Mysore. The milk-maid on the right is the work of the artist, Jotir Indra Roy.

(Photos : A. S. Vaswani)



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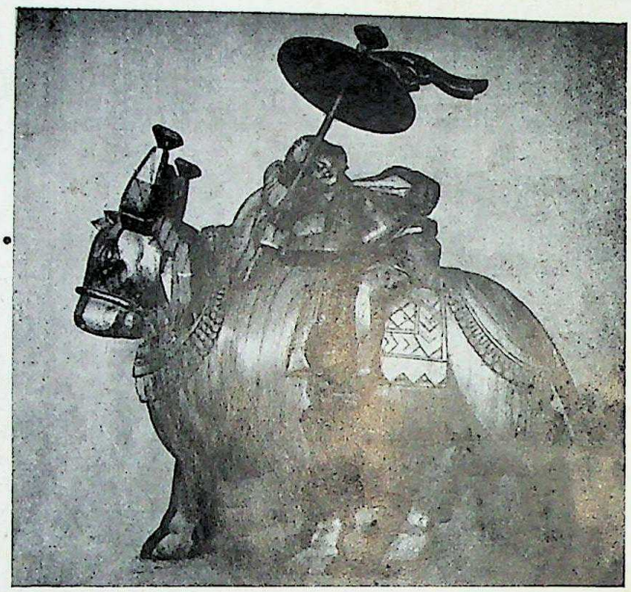

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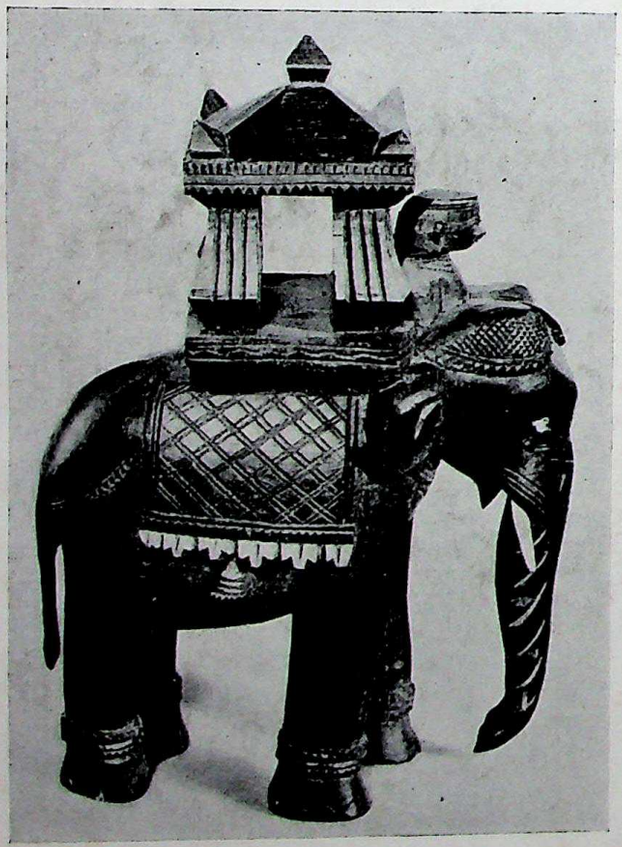

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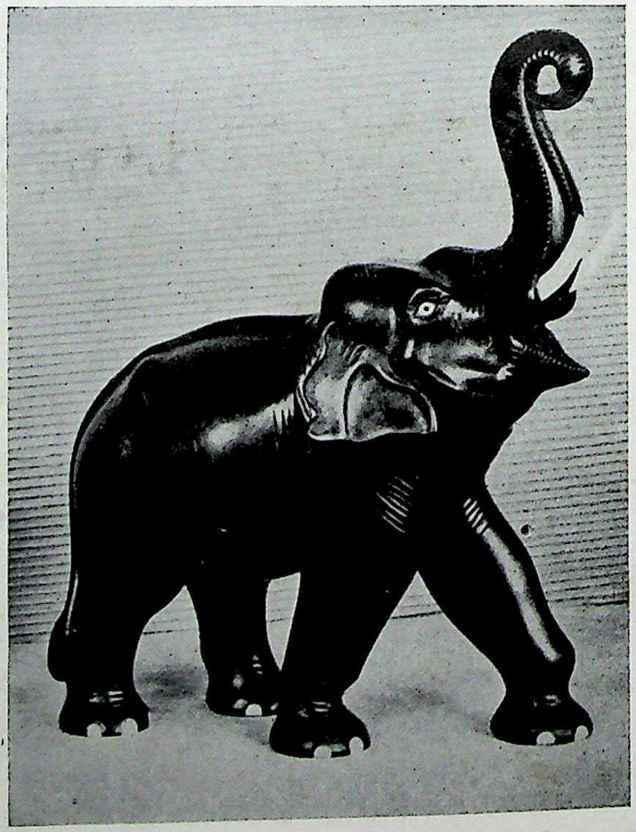
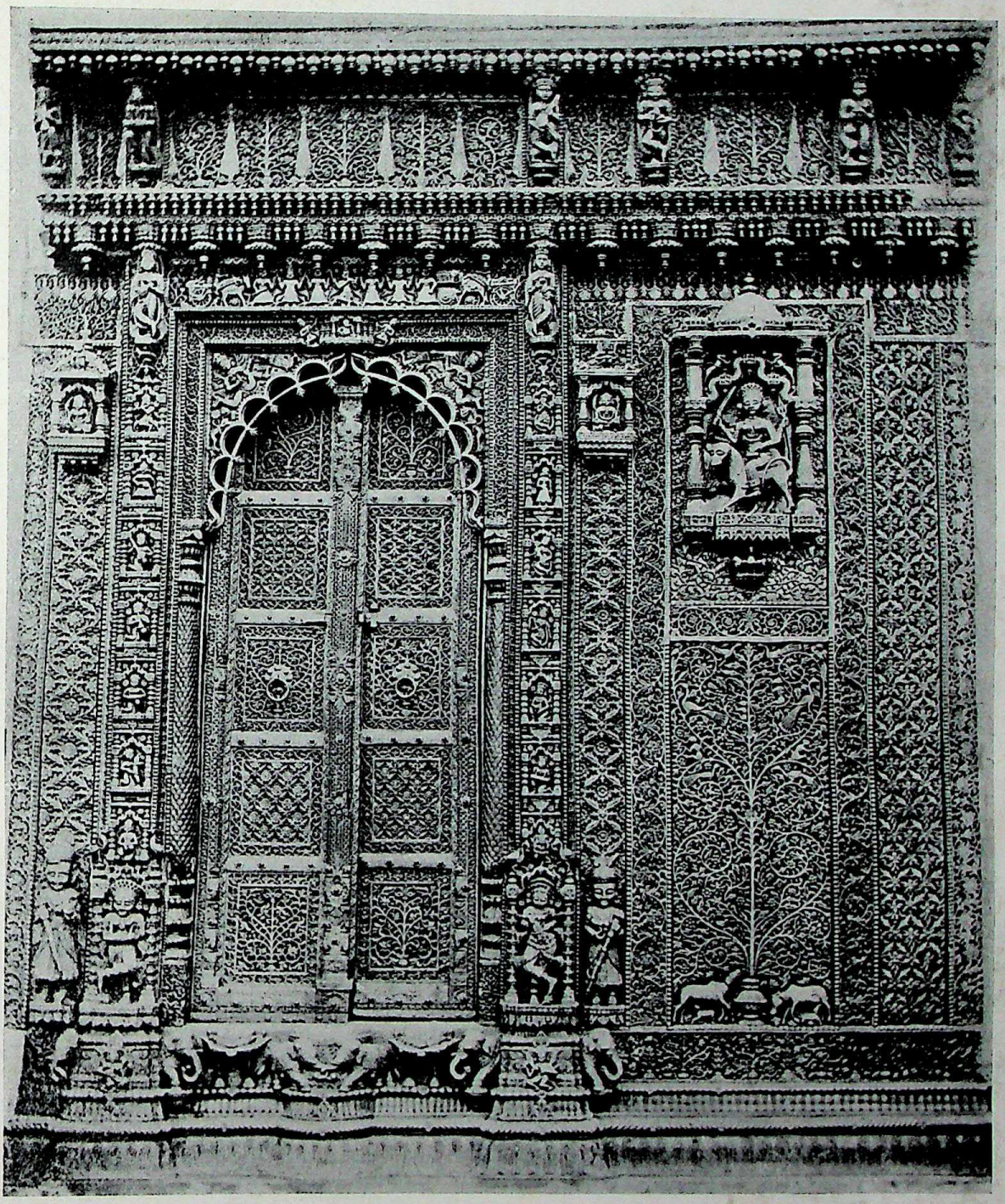


4

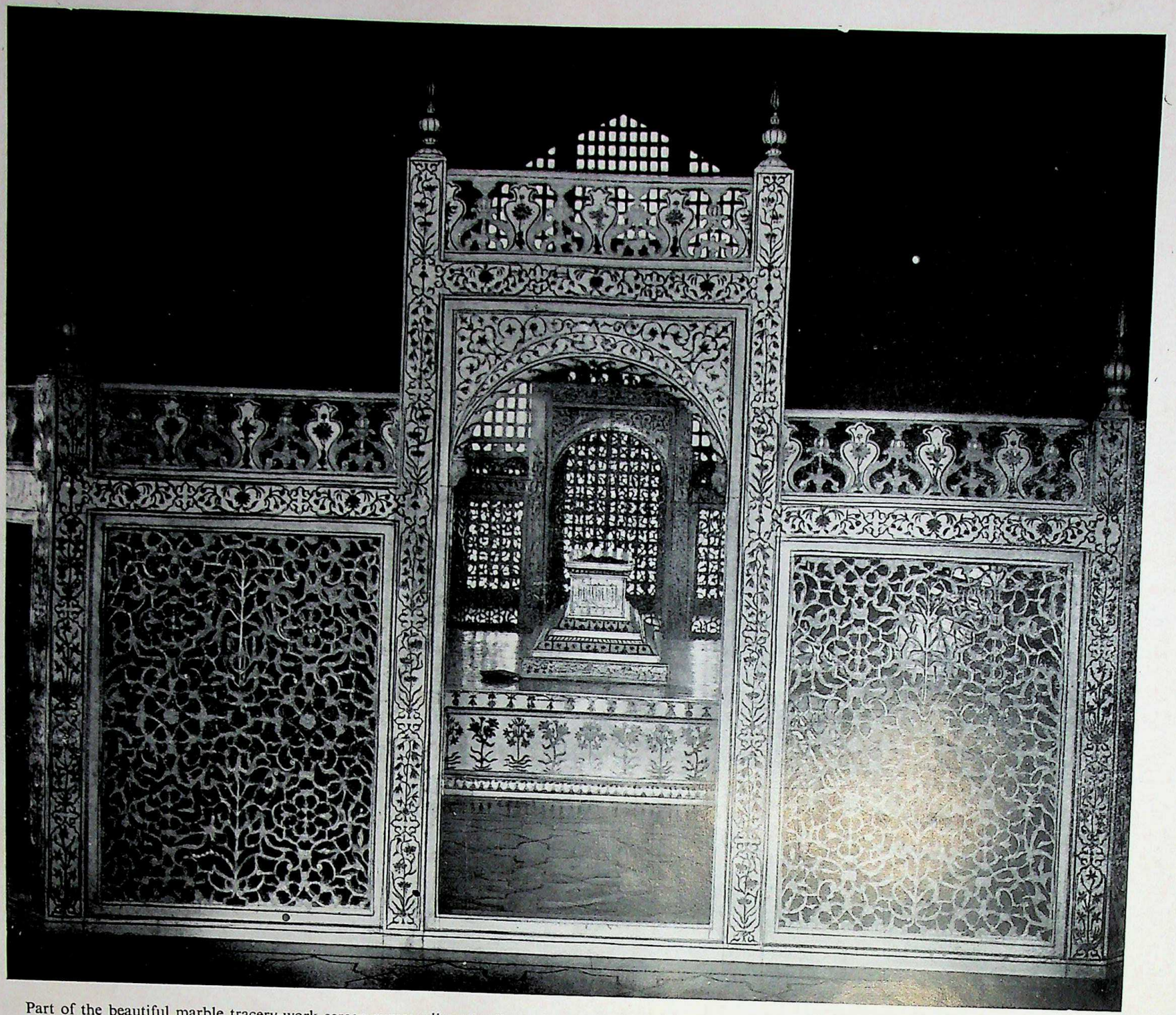
1. A wooden book-end, and 2, wooden carving, both by Jotir Indra Roy. 3. A rosewood elephant in the traditional style. 4. A modern representation of a carved wooden elephant in the round.

(*Photos : A. S. Vaswani*)

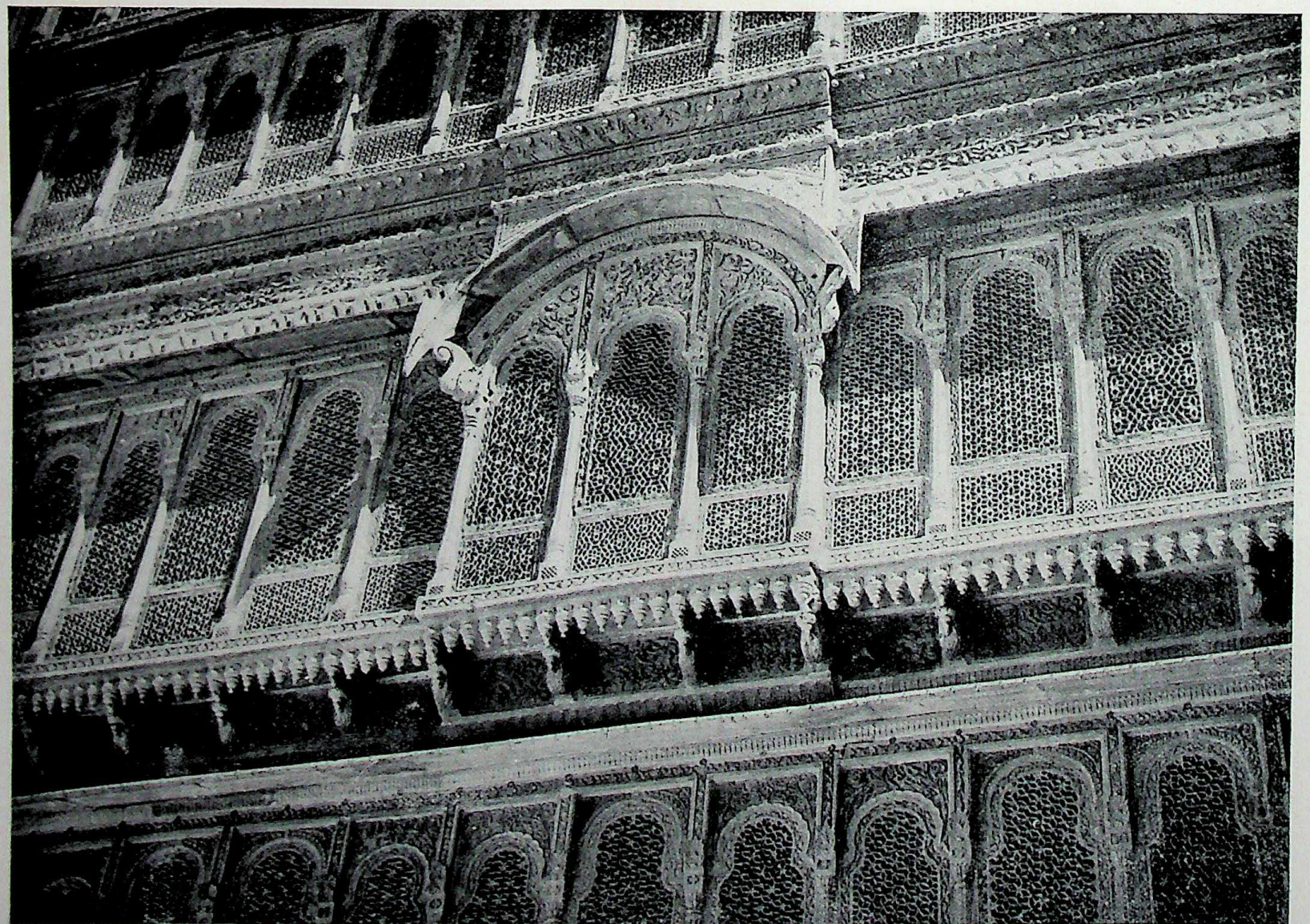


A fine example of wood carving in architecture : facade and doorway of a house in Kaira, Gujarat District, over 250 years old.

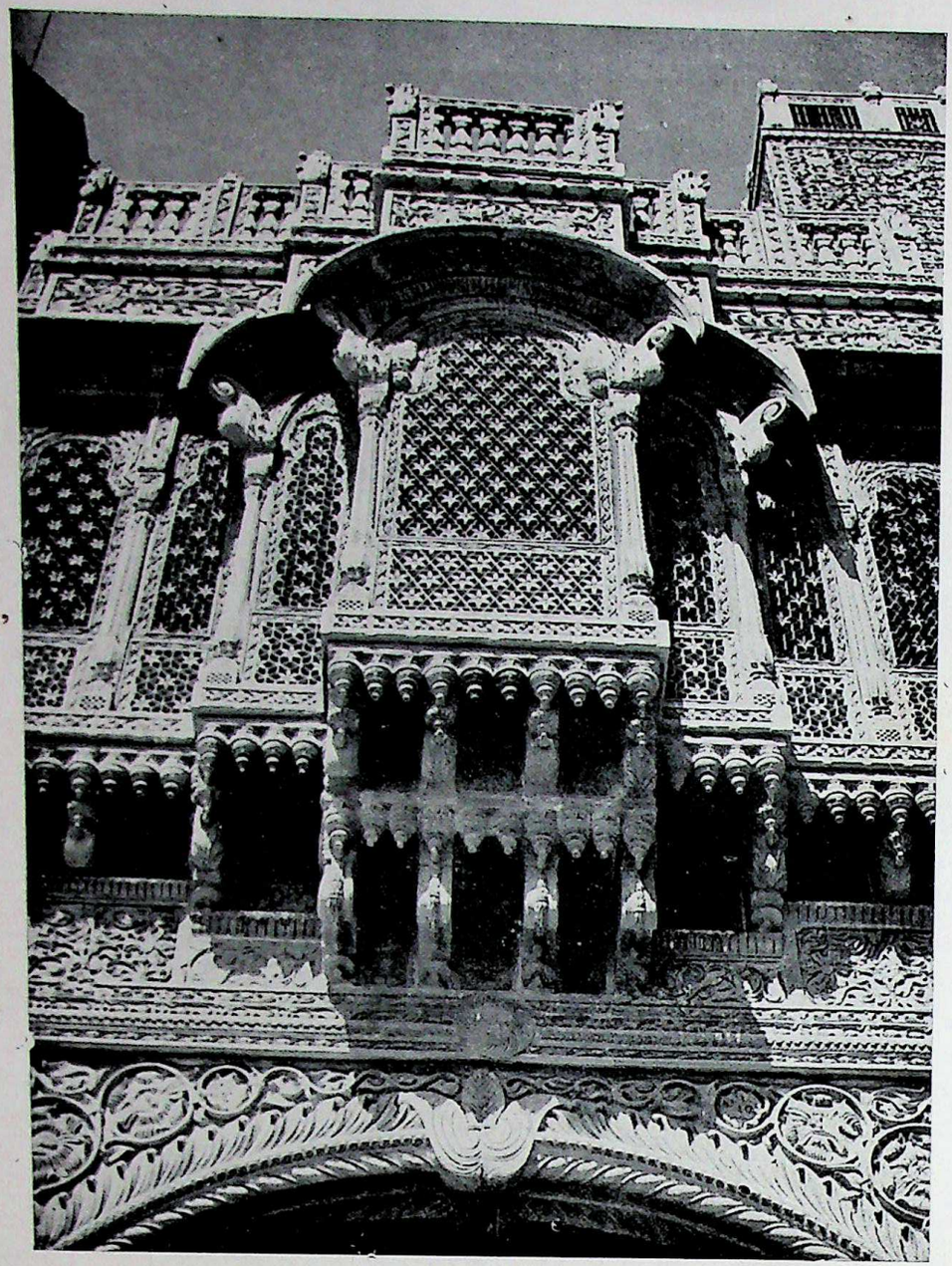
(From *The Journal of Indian Art and Industry*)

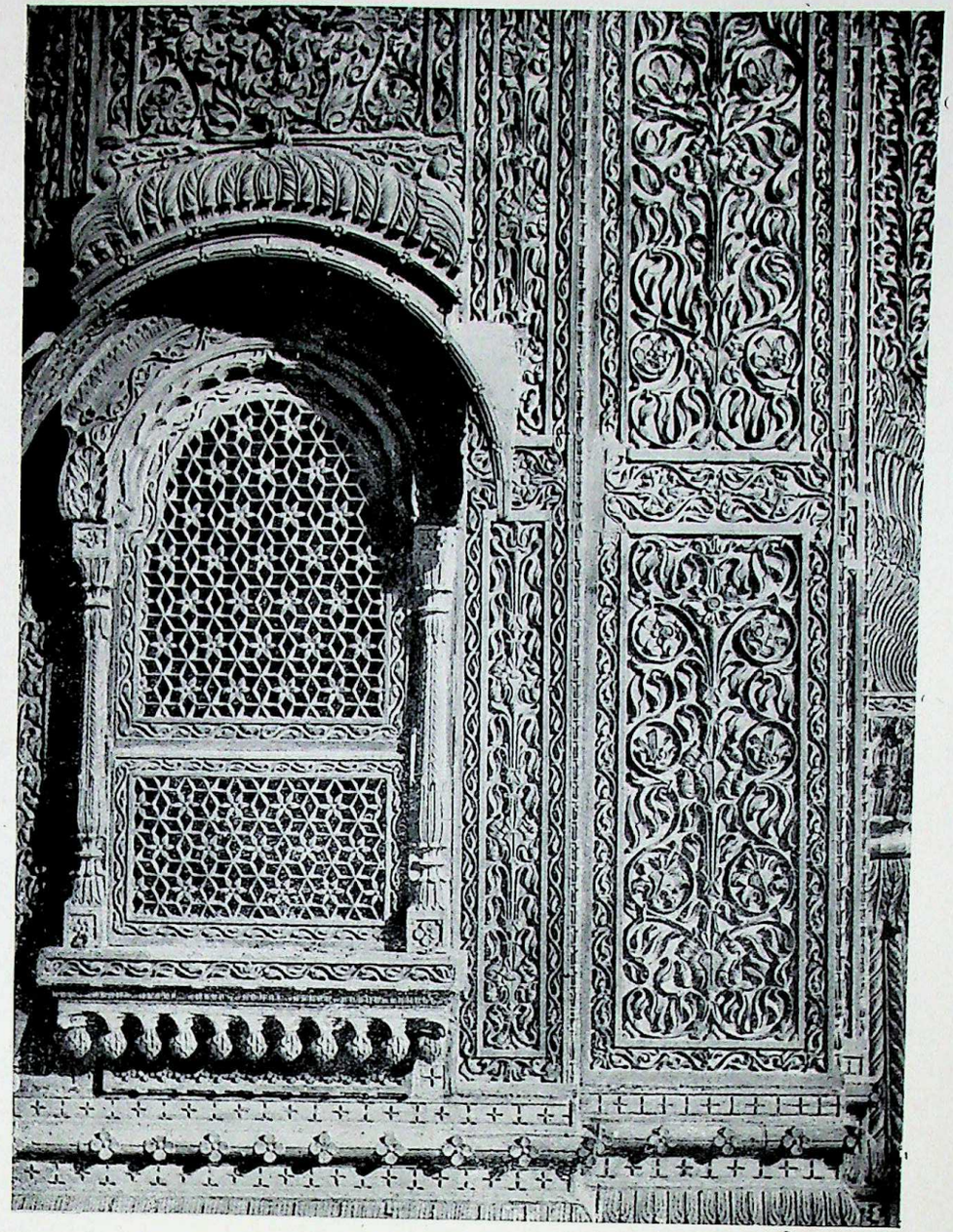


Part of the beautiful marble tracery-work screen surrounding the simple tombs in the Taj at Agra. An unsurpassed example of the art in Moghul times. Fergusson writes : "The light to the central apartment is admitted only through double screens of white marble trellis-work of the most exquisite design . . . no words can express the chastened beauty of that central chamber, seen in the soft gloom of the subdued light that reaches it through the distant and half-closed openings that surround it." Note the marble inlay work.

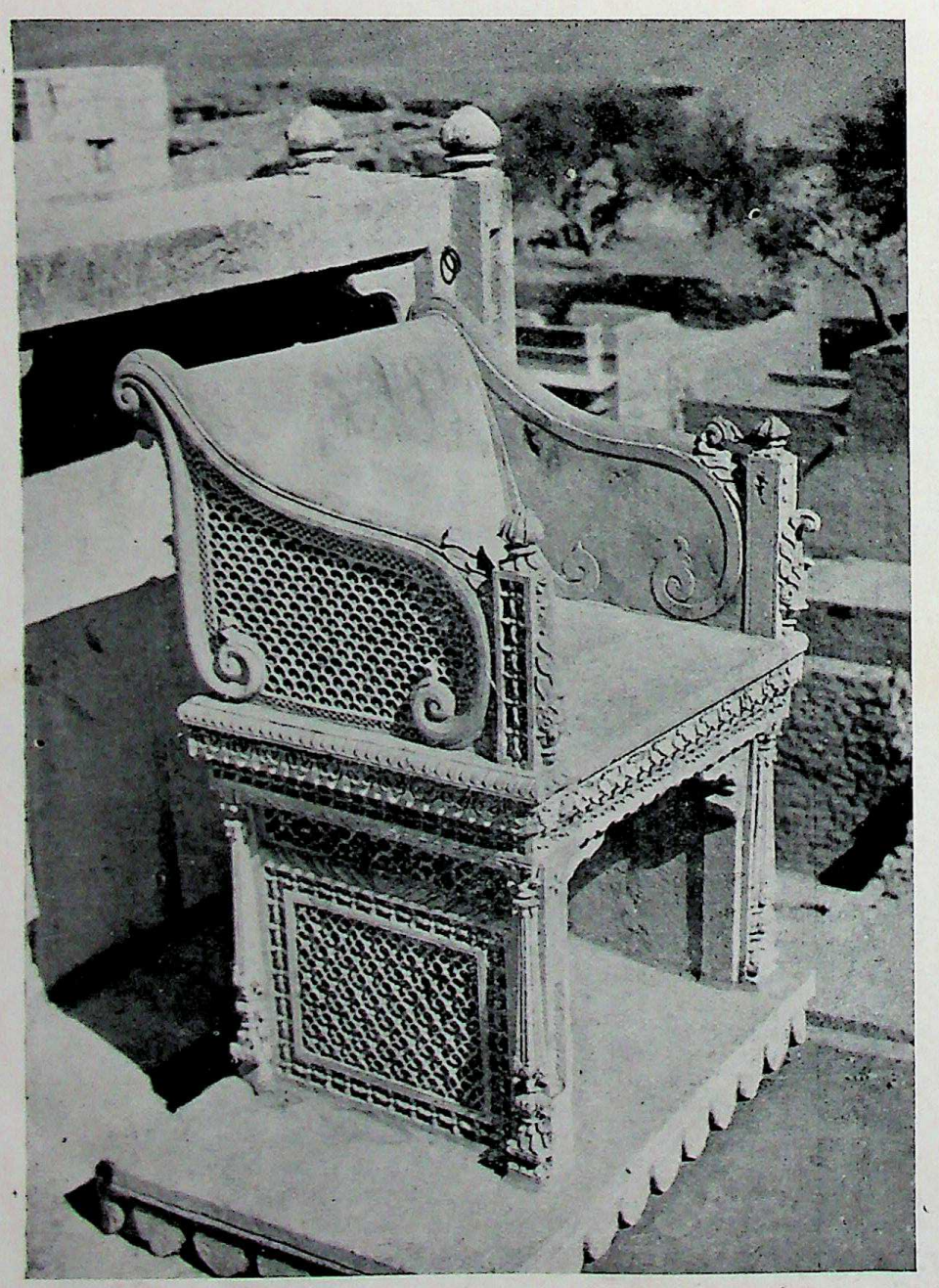


Details of the stone *jali* work from the inner courtyard of Lalgarh Palace, built of red sandstone, Bikaner, Rajasthan.
(*Photo : A. L. Syed*)

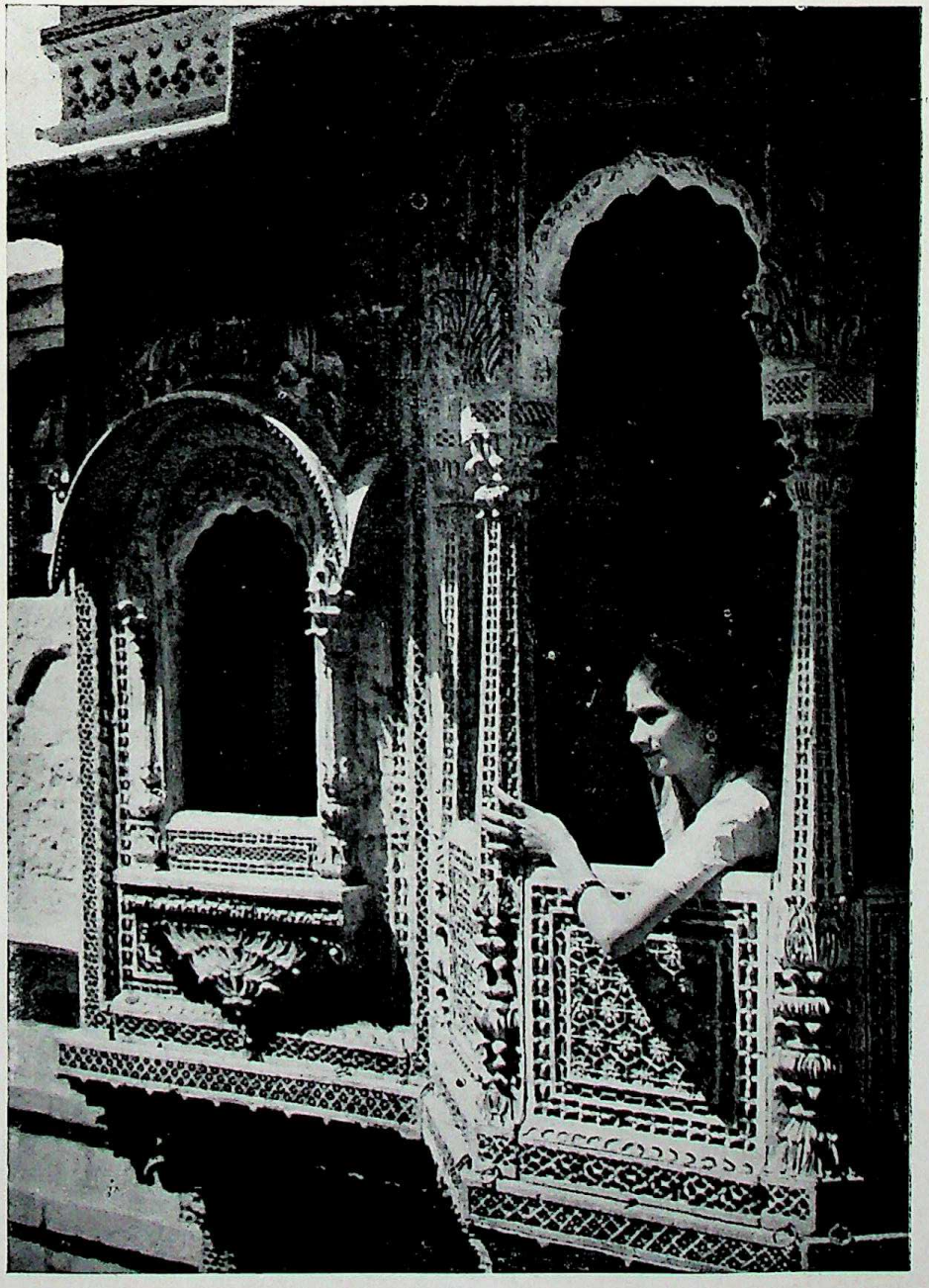




Jali work and carvings on the red sandstone facade of Lalgarh Palace, Bikaner, Rajasthan.
(*Photos : A. L. Syed*)

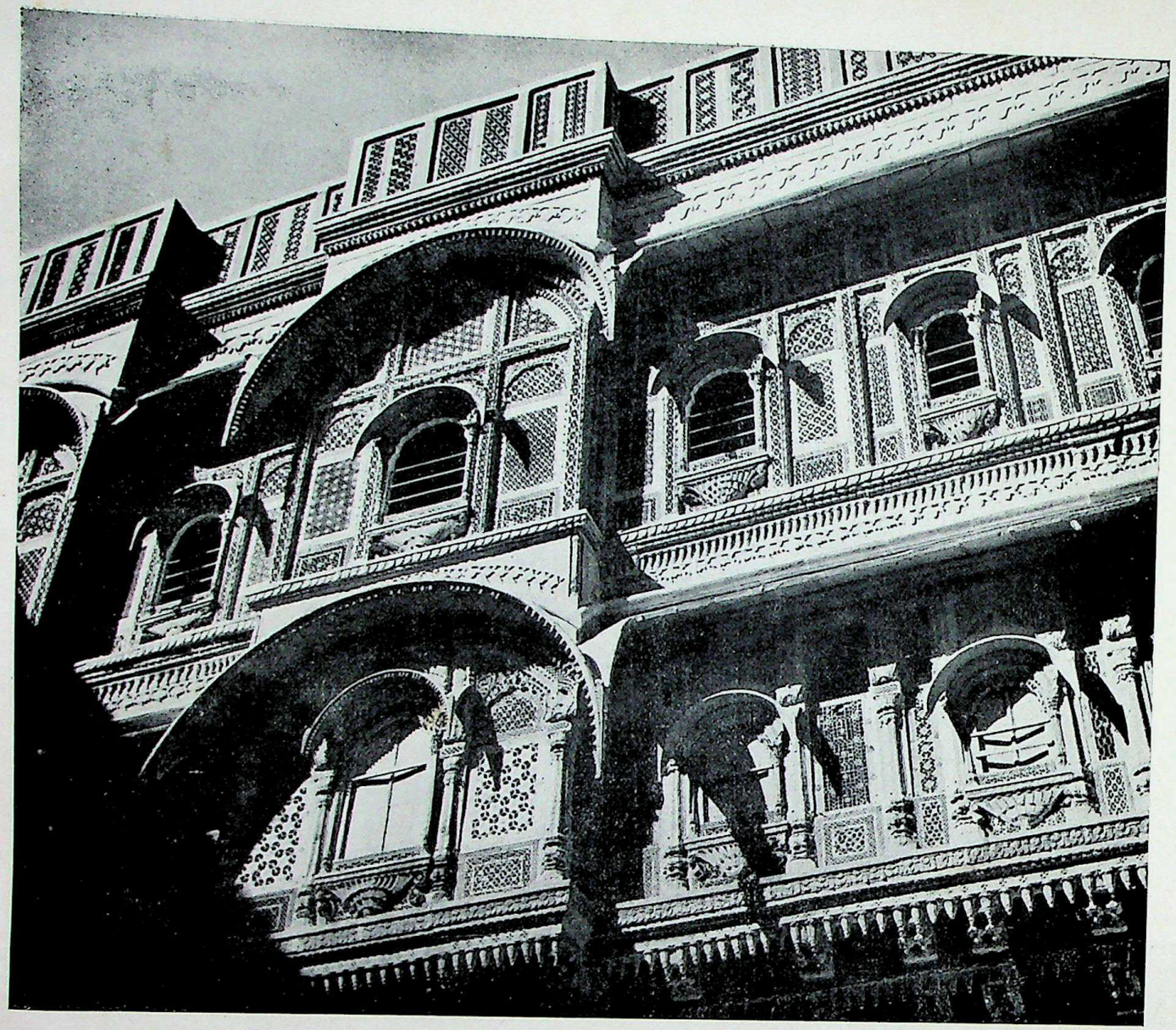


Jali work applied to an old stone seat on the roof of Patwa's Palace, Jaiselmer, Rajastan.



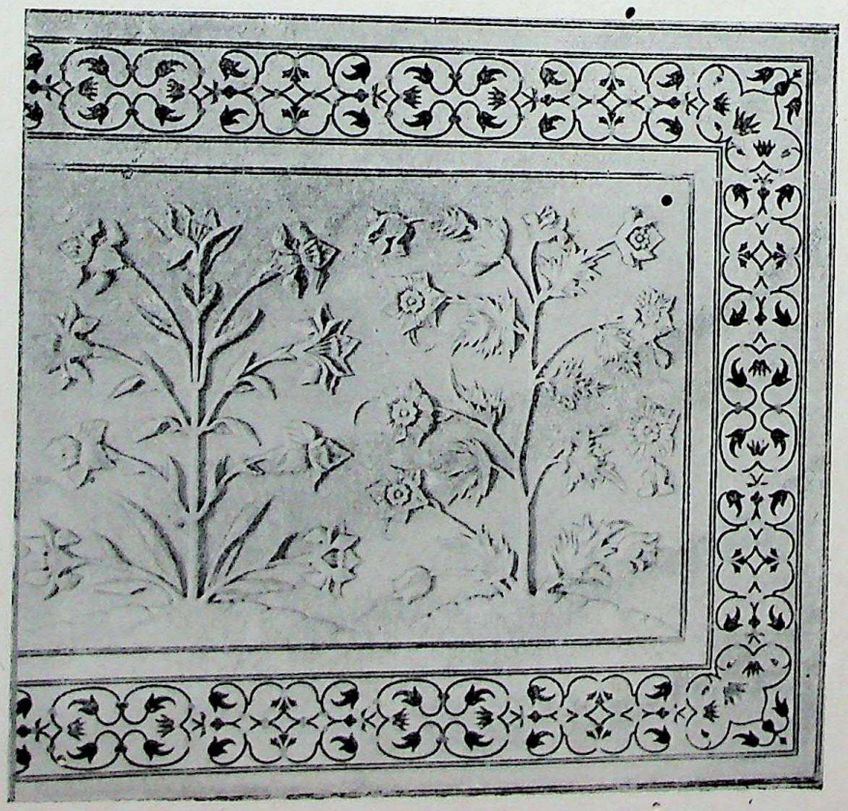
Beautifully carved stone balcony with *jali* work of a house in Jaiselmer, Rajasthan.

(*Photos : B. Bhansali*)



Carved and *jali* work windows and arches of a yellow-brown sandstone house in Jaiselmer, Rajasthan.

(*Photo : B. Bhansali*)



Inlaid marble border and delicately sculptured floral ornament in low relief from the Taj, Agra.

(*Photo : M. V. Vijayakar*)

always floral, with occasional geometrical tracery. Sir George Watt points out : "The effect of the carving is enhanced by the clever way the background is punched in minute circles. This not only gives a finish to the work but relieves and heightens the carving."

It has been pointed out by some authorities that the industrial arts of the united Punjab of Pre-partition days show a definitely Mohammedan character, though later on the Sikhs tended towards a freer use of Hindu motifs in their crafts, and therefore it is not surprising that their wood-carving should have a character of its own. The carved foliage is elaborately depicted and we find the introduction of grotesque animal and human figures, forbidden by Islam.

According to J. L. Kipling, "the essential characteristics of what may be called the official style, such as flatness of relief, absence of under-cutting, the free use of geometric diapers, incised in line merely, in relief or in framed lattice-work, and the late Mughal pillar, pilaster, and *mihrab** were retained even by the Sikhs." (*Journal of Indian Art,* Vol. 1, 1886.)

Madhya Pradesh and Bengal are also noted for wood-carving as well as Rajasthan and some other places in the centre of the country. In Rajasthan and Sind, the woods commonly used are *babul* (*Acacia sp.*) and *rohira* (*Tecoma undulata*). Perforated wood tracery is very popular here as well as in Kutch, and the carving when used is generally bold and highly ornate in its floral forms.

Gujarat has always been deservedly famous for its carving, both as used architecturally and on furniture and other objects of use. Here is to be seen a synthesis of the Hindu and Mohammedan influences, a perfect blending of two styles with a perfect elaboration of detail, yet bold and gracefully dignified. As put so perfectly by Sir George Watt, "from the temples and mosques to the cabinet makers' productions, show an intricacy and elaborateness that recalls the ebony wood-carver's work of Nagina, rather than the architectural wood and stone carvings of any other part of India. It is this rigorous attention to detail that makes the work so much more expensive than that from all other art centres."

The south is not deficient in this craft. Mysore and Coorg, Madras, Travancore, etc., are all well-known for the quality of their wood-carving work.

In 1888, T. N. Mukharji wrote : "Curious articles of betel-nut, called *karungar,* are manufactured at Jaipur. These consist of little figures of animals and reptiles, rulers, walking sticks, etc., carved out of pieces of betel-nut, which are joined together when necessary. Toys and other articles of carved wood are made at Dholpur." In Jodhpur used to be made the *hindola* or cradle for swinging religious images, made of wood, carved, coloured, and often further embellished with gold-gilt. Here also were made the *sinhasanas* or thrones for Hindu deities. Speaking of the south, he writes :

"At Tirupati, a place of pilgrimage, mythological figures are carved in red-wood (*Caesalpinia sappan*) and sold to pilgrims who visit the sacred hill at that place. These figures, although rough in finish, are executed in a free bold style." And he continues :

"At Trivandrum in Travancore very spirited and well executed designs are carved on diminutive cocoanut shells." These may consist of "entire cocoanut shells with lids, cocoanut shells inlaid with silver, teapots with trays, sugar-basins, cups and saucers, figures of deities and human beings, and other articles made of these shells, carved and often inlaid." Similar articles are also made of the hard shell of the *bel* fruit (*Aegle marmelos*). Cocoanut shell carving is also done at Kanara and Savantwadi to a limited extent.

Recently, the author had the opportunity of seeing a very large model of the complete temple at Madurai made out of pith. T. N. Mukharji refers to this craft : "At Trichinopoly, Coimbatore, and Tanjore models of temples are carved out of the soft *Sola* pith (*Aeschynomene aspera*), those made at Tanjore being the best." Though faithfully executed and looking like ivory from even a short distance, they are however very brittle, and are easily destroyed by damp and are susceptible to the attacks of insects. The model of the Madurai temple seen by the author was crumbling away although it was in a large glass case and carefully looked after by its owner.

SANDAL-WOOD CARVING

The soft sandal-wood (*Santalum album*), called *sukhad* or *chandan,* is probably the most suitable material for fine and detailed carving, and "It is with the natives of India engraved, inlaid or veneered and made into a variety of most beautiful and artistic articles." (Watt.) At present, the chief centres of sandal-wood work are Ahmadabad, Surat, Kanara, Colmbatore, Madurai, Mysore, Travancore, Tiruchirapalli (Trichinopoly), and Tirupati. While Surat work is elaborate and mostly in high relief, the places in the south show a more elegant style of carving on boxes, photo frames, paper cutters, book covers, screens, and such other small articles. The most important centre today is the Shimoga district of Mysore.

"The most beautiful example of Mysore sandal-wood carving ever seen in this country (England — R.J.M.) was a little cabinet exhibited by Major Puckle in the Annual Exhibition of 1871," says Sir George Birdwood. "It was surmounted by a triangular head-board on which were carved Brahma and Saraswati in centre, and Siva on Nandi on one side, and Siva and Vishnu coalesced in Krishna on the other ; the outline of this headpiece being waved in a manner to represent the mystic triliteral monosyllable AUM. On either side of it was an elephant waving a *chauri* in its trunk ; and below it a narrow border on which were carved Lakshmi, Parvati, Garuda, Hanuman, and other of the gods, all in a row. On the right door of the

* Arched niche in the western wall of a mosque and towards which worshippers turn for prayer.

cabinet Vishnu on Garuda, with Lakshmi by his side. was represented in the centre, surrounded by the forms of his ten avatars; and on the left door, Siva on Nandi, with Parvati by his side, was represented in the centre, surrounded by the guardians of the eight quarters of the earth, Indra, Agni, Yama, Nirritu, Varuna, Vayu, Kubera and Isana."

Though carving on sandal-wood is generally minute and elaborate, distinct styles can be noted : in the Ahmadabad work the floral patterns are comparatively large, deeply cut, and interspersed with mythological figures. Thus, Krishna and the gopis are commonly represented in a natural manner, shown disporting themselves in a luxuriant forest in which each tree, though conventionally carved and merging with the general floral decoration, can yet be distinctly recognised. An undulating band on which fishes, tortoises and water-fowl carved in half-relief will represent a flowing river. Mythological details are also prominent in Kanara sandal-wood work, but on the whole it is more akin to that of Mysore. In the latter work the foliage is often in fan-like sprays with the tips depicted in a rolled-up state. The mythological figures are generally carved within canopied panels, and elephants and swans are common motifs. The designs of the Bombay and Surat craftsmen are chiefly foliated and the carving either in high or low relief.

In Bombay, Surat, and Ahmadabad, all three important sites of sandal-wood carving, the work is done only on small objects, the designs exhibiting a Jain influence. Sir George Watt points out how "the branches of the trees constantly assume the encircling feature of the Ahmadabad window panelling." How, "the foliage is large, bold, deeply and freely cut, with the individual leaves having upturned tips and coarsely serrated margins. Interspersed with the foliage, a profusion of temples, also human and mythological subjects occur, but these display remarkably little conventionalism and artistic grouping and no trace of perspective . . . Reliance is apparently placed upon massiveness." He also believes that the sandal-wood carving of Gujarat bears evidence of an older art, probably ebony-carving.

As said before, the Kanara sandal-wood work is akin in feeling to that of Mysore. Here also mythological motifs are common, but artistically treated. The carved surfaces are as a rule recessed or panelled and the moulding of the foliage finer and more sharply defined than in Gujarat work.

Actually, the style of carving differs in each place, however slightly, and it is difficult to describe the fine subtleties of conception and technique. But, in general terms, it may be summarised that the carved work of Travancore is bold and with the designs naturalistic in style. At Tiruchirapalli, Madurai, Nellore, Kistna, and other nearby places, "the designs are floral and mythological and worked out with great minuteness, and are really more remarkable as examples of patience than as works of art." (G. Bidie.) The Mysore work is "elaborate and minute, representing figures in Hindu mythology, skilfully encircled by intricate foliage, with figures of animals in relief."

During the last century, sandal-wood was also carved extensively in Moradabad. The designs in use there were mostly geometrical and sometimes the articles were also inlaid with ivory in the manner of the old Sicilian tarsia work.

Sandal-wood fly-whisks, called *chauris,* used to be widely made in the south. A long piece of the wood was sliced, each section being as fine as a hair. On the other end, a small part of the wood was left uncut. This was then carved into a handle and the sliced sections carefully twisted open to form a fan. "Such *chauris* when waved before the face or behind a man in order to drive away the flies emit the fine fragrance of sandal-wood." (T. N. Mukharji.)

The articles commonly made nowadays, especially in the south, are combs, jewel caskets, boxes of different sizes, small mythological figures, animal models, walking sticks, chessmen, fans, small pieces of furniture, etc. Those purporting to appeal more to European taste include paper-cutters, visiting-card cases, photograph and mirror frames, covers for albums, inkstands, book-racks, pen-racks, stationery racks and cabinets, writing desk sets, and beautifully carved screens.

We read in the *Mysore Gazetteer,* "The designs with which the *Gudigars* entirely cover the boxes, desks and other articles made, are of an extremely involved and elaborate pattern, consisting for the most part of intricate, interlacing foliage and scroll work, completely enveloping medallions containing the representation of some Hindu deity or subject of mythology, and here and there relieved by the introduction of animal forms. The details . . . are grouped and blended with a skill that seems to be instinctive in the East, and form an exceedingly rich and appropriate ornamentation, decidedly oriental in style, which leaves not the smallest portion of the surface of the wood untouched." (L. Rice.)

The art of sandal-wood carving is slowly dying out as it has always been restricted to a few families in all the important centres. The tools that these *gudigars,* as they are called in Mysore, use are very simple, generally consisting of a small saw, a crude plane, many different kinds of chisels of varying sizes, a wooden mallet, and a few engraver's tools.

There are two or three qualities of sandal-wood used for carving and, as a rule, the darker the colour the better is the quality supposed to be. The wood is first planed and smoothed and the design either drawn directly on it, or on a piece of paper which is pasted onto the wood. The outlines are then carefully engraved in all their details. The areas between the engraved lines which are to be sunk are next carved away, leaving the pattern in low relief. Finally, the design itself is carved and shaped by means of small chisels to produce the exquisite details which are seen in a fine piece of work. Thus the different effects of light and shade, every expression and curve, and every

grade of texture are cleverly brought out. The intricacy and the delicacy of good sandal-wood carving can only be equalled by ivory carving of the same high quality.

WOOD-CARVING IN ARCHITECTURE

Wood-carving for architectural purposes has been practised in almost all small towns and many villages in India, and very often the doorways of the houses used to be carved with feeling if not always with much technique. There is no doubt that wood-carving in relation to architecture is of very ancient descent although we have no surviving examples of past work due to the perishable nature of the material. But it can be safely assumed that even in very early ages, wood-carving was widely used for the purposes of architectural decoration, and it has even been maintained that the beautifully carved panels and window screens found in the earliest rock-cut temples of Ajanta, Nasik, Karli, Mahabalipuram, etc., manifest an origin from carved wooden prototypes.

In ancient India, the worker in wood, the *sutradhar*, held a high place in the social hierarchy, for he it was who made the chariots for the mighty warriors of old, and he it was who also was by profession driver of the chariots both in peace and in war. Carpenters are mentioned in the *Rig Veda,* and as already pointed out in a previous chapter, the *Silpa-sastras* and the *Brihat Sanhita* give detailed directions as to the felling of timber trees, the methods of seasoning the timber and even the making of different kinds of furniture and other wooden articles of domestic use.

Even today, examples of superb craftsmanship in architectural wood-carving can be seen in Gujarat, Kathiawar, East and West Punjab, Kashmir, Uttar Pradesh, and Rajasthan. The highly elaborate and detailed carvings of the temples and palaces of Mysore, Madurai and Bellary testify to an ancient art that could create in wood the effect of sculpture in stone. Perhaps the finest examples of the work can be found inside the Darbar Hall of the Amba Vilas and the beautifully carved doors of the large Daserra Hall of the Palace at Mysore.

Nasik also is famous for its carvings in wood and carved timber houses, in which every beam, window, door, bracket and cornice is artistically decorated with carvings, generally based on the form of the sacred lotus. In Madhya Pradesh, many of the old houses have carved fronts in teak, even in the small villages, on which minute floral designs are delicately chiselled with good technique. "In Gujarat and Rajputana (Rajasthan today — R.J.M.), the craftsmen work out beautiful perforated tracery and flower carvings on window shutters, window-balustrades and door-screens. The doors and windows of houses in the Punjab exhibit some of the best efforts of the carvers in wood. But the *Khatam-Bandi* style of ceiling is the sole monopoly of Kashmere and has so far remained unimitated in any other part of the world. It consists of small pieces of carved wood fitted with frames in geometrical designs to form decorative ceilings for rooms. Almost all the houses in Kashmere possess these ceilings.

"Wooden sculpture of a very high order is an integral part of the cottage architecture of rural Bengal. This sculpture is to be found mainly in the cornice brackets where the head and the trunk of the elephant or two women joined arm in arm are the common motifs." (Shanti Swarup, *The Arts and Crafts of India and Pakistan.*)

Architectural wood-carving is practised extensively in the Punjab, both East and West, the one in India and the other in Pakistan today, especially at Bhera, Amritsar, Batala, Chiniot, Rawalpindi, Hissar, Lahore, and Sialkot. Mr. Kipling has remarked :

"On the doors and windows of native houses, the best efforts of the carvers are expended. These are frequently wrought at a distance from the place where they are to be used and are built into the structure at the will of the purchaser. The style is Muhammadan. The ornament is severely conventional, and the introduction of panels of framed lattice work, locally known as *pinjra,* ingeniously dovetailed in geometric designs, gives an Arabic character to the whole."

STONE-CARVING IN INDIA

Perhaps the earliest form of stone-carving was the making of stone weapons like arrow-heads, javelin points, hammers, etc., from flint and such articles have been found in abundance during excavations at Allahabad, Mirzapur, Ghazipur, Banaras, Bulandshahr, Bundelkhand, and many other places. "The stone implements from Banda district are chiefly hammer stones of quartzite, basalt, sandstone, celts of basalt and diorite, and small implements made of chert. In Mirzapur the principal classes are chert flake knives and arrows." (R. Burn.)

The ancient *Silpa-sastras* have laid down definite precepts to be followed by the stone-masons — precepts handed down from father to son up to the present time. The most important part of these ancient Sanskrit technical classics was the *Manasara* which used to be consulted by the Hindu craftsmen for guidance in architecture. It contains the proportions and measurements of the various parts of a temple, the religious rites to be observed at the laying of the foundations of sacred structures, strict rules about dimensions, and other edicts that may have been responsible for the perfect symmetry of the Hindu architecture of old. To take a random example, it has been specified that the height of a pedestal was to be divided into twenty-four parts, the plinth (*updna*) measuring five parts, the fillet (*campa*) one, the dado (*cantho*) twelve, the *campa,* one again, the *patica,* four, and the topmost *campa,* one. Similar proportions have been enjoined for the height and diameter of shafts, the length and breadth of buildings, etc.

According to Fergusson there was no stone architecture in India before the 3rd century B.C., and he contends that it was Asoka who introduced it, all previous structures before his time being of wood. Actually, the rich stone carvings in the old temples fully testify to the high art of the Hindu stone-mason. But in this chapter we are concerned mainly with stone-carving in relation to architecture ; not with the art of sculpture of the Hindus, but the craft of stone-carving of the Mohammedan period. "In India the artistic influence of the conquered Hindu was powerless against the religious precept of the Quran, which forbids the portrayal of man, or animal or bird. So for several centuries the Hindu stone-mason had to carve the designs, approved by a foreign conqueror. Generation after generation was taught to carve solely scroll work, arabesques, and geometrical patterns, until the sculpture of figures became almost a lost art. The Muhammadan invasion is thus the beginning of a new epoch in the history of native stone-carving."

Rajasthan and Uttar Pradesh are the chief centres of stone-carving for architectural purposes. Here timber is scarce but stone fairly abundant and so it is not surprising that these regions are noted for magnificent buildings adorned with stone carvings of exquisite workmanship. To name only two, the Kutub Minar near Delhi and the old temples of Ajmer, fully testify to the heights to which the Indian craft of stone-carving had risen in past years. It is said that when the Mohammedans invaded India they "found themselves among a people their equals in conception, their superiors in execution, and whose taste had been refined by centuries of cultivation." (Hope.) They may have introduced the bold outlines of the *mihrab* or pointed arch and the lovely lines of the tall minaret, but in their place they borrowed from their Hindu subjects, the delicate traceries, their pillared halls, and the art of rich stone ornamentation.

The earliest stone-carving of the Mohammedan era dates from A.D. 1438 and started with the building of the Juma Masjid at Jaunpur by Shah Ibrahim Sharqi in this year and finished sometime in A.D. 1448, probably by Sultan Hasan Sharqi. A good deal of the building materials was no doubt collected from the ruins of Buddhist and other temples. If one studies the Juma Masjid at Jaunpur, the best carving will be found on the sandstone *mihrabs* which are arched niches in the wall, an architectural feature found in all mosques, and towards which the worshippers turn when praying.

Though we have no existing example of stone-carving of the time of the first Mughal emperor Babar, he must have been a great patron of the art for he has written : "In Agra alone, and of the stone-cutters belonging to that place only, I every day employed on my palaces 680 persons ; and in Agra, Sikri, Biana, Dholpur, Gwalior, and Koel there were daily on works 1,491 stone-cutters." As far as we are concerned the stone-carved architecture of the Mughals starts with the simple, dignified yet grand structures of the time of Akbar, many of them showing signs of the Hindu style. In the case of the Gobind Deo temple at Brindaban, built by Man Singh of Jaipur, one of Akbar's ministers, this eclecticism was a distinct artistic triumph. This is especially to be seen in the introduction of animal and human forms, prohibited by Islam, but tolerated by the broad-minded Akbar. Even at Fatehpur-Sikri, Akbar's red-stone city, this influence is noticeable, especially in the Turkish Sultana's house and Jodh Bai's palace.

The mausoleum of Salim Chisti at Fatehpur-Sikri, of beautiful white marble and perhaps one of the finest and most dignified examples of Mughal architecture, also dates from Akbar's time. Edmund W. Smith thus describes the cenotaph :

"The outside of the canopy is encrusted with mother-of-pearl laid in geometrical designs, bound at

the corners and sides with copper. The cornice is worked with the fish-scale pattern so common to the period in which the mausoleum was built. Running through it is a battlemented pattern in ebony, which material is also freely used upon the four-armed bracket capitals, the sub-caps, and the bases of the columns supporting the canopy. The capitals and brackets are very intricately and delicately carved; and, in order to protect the fine inlaying upon them, the arrises of the mouldings are bound with copper.

"The same design, or nearly the same, appears on each of the bases, but that upon one side of the base is unlike that on the other. The inlaying is so intricate that it looks like damaskeen, but in mother-of-pearl instead of gold and copper wire. Each tiny piece of mother-of-pearl is exactly shaped and fitted into the allotted position previously prepared for it and then secured . . . with minute pins and shellac. The minute strips of ebony between each piece of mother-of-pearl are secured in like manner, and are perfectly flush with the face of the mother-of-pearl. It is impossible to describe the effect of the mother-of-pearl as seen in the dim light of the mortuary chamber. It is one of those things which almost defy description, and in order to realize its beauty it must be seen. The inlaying is most minutely and beautifully executed." (*Journal of Indian Art and Industry*, Vol. VIII, 1900.)

Probably it was in the reign of Jahangir that *manabhat kari* or stone inlay work came into fashion. Red sandstone gave place to marble and mosaic to inlay. As H. S. Crosthwaite says: "In Akbar's reign the artist was content with beautiful but comparatively simple tracery work in red sandstone, with large mosaics in coloured marbles. In Shah Jehan's reign the ivory-white marble of Makrana has replaced the red sandstone of the Vindhyans; the big mosaics and geometrical tracery of Fatehpur-Sikri have been refined till they reach a climax in the jewelled inlay and flower-like tracery of the Taj, or in the virgin beauty of the Moti Masjid. There is probably no building in the world, to which the Horatian 'Simplex munditiis' can more truly be applied than to the Moti Masjid. It is sometimes said that there is no carving in this mosque: but in reality it is a triumph of the stone-cutter's art. On the beautifully moulded pillars and dazzling white domes, on the marble inlaid prayer 'carpets' and delicately chiselled *mihrabs* the highest art of the stone-mason has been lavished. The Taj, though, like the Moti Masjid, a marvel of stone-carving, is also the handwork of the jeweller. With the Taj may be grouped the Jasmine Tower, and the Diwan-e-khass (Hall of Private Audience — R.J.M.) in Agra Fort. In all three the carving and inlay are exquisite, elaborate and chaste. The floral patterns (*jharh*) of tiger lilies, roses and other fruits and flowers are deeply cut and then smoothed, so as to give no impression of angularity and hardness to the eye."

Stone-carving in relation to architecture may be said to have reached its zenith, and also its decline, in the reign of the beauty-loving Shah Jahan, the creator of the Taj. Money was lavished on architectural beauty — "beautiful with the loveliness of a Psyche, clothed in fine raiment and adorned with priceless jewellery." But such lack of economic responsibility could not last for ever; the end soon came in the time of Aurangzeb who in any case had little real love for the beautiful. And with the fall of the Mughal reign came the downfall of Mughal art and the creation of beauty in stone and marble was a thing of the past.

Considering the superb grandeur that the Indian stone-mason can create, he works with very simple tools and almost by rule of thumb. The quarried stone is rough hewn and shaped, the mason sitting on or by the side of it and laboriously chipping it away with a hammer and a pointed punch, the *tanki*. This is followed by a further smoothening of the stone surface with a cold chisel, the *tanka* or *pahuri*, until the required size and shape have been obtained. This is not considered skilled work and is mostly done by assistants belonging to a lower caste than the stone-mason himself.

The shaped stone now comes to the mason himself. The design is drawn on it, often a conventional pattern either floral or geometrical. Though many will draw the design by eye alone, others do use a compass and right-angle to ensure accuracy. The pattern is now carved with a hammer and cold chisels of differing widths and thicknesses, generally made by the local blacksmith. Skill the Indian stone-carver has, but he generally lacks individuality, that flash of personal genius that can make his work rise above that of his fellow-craftsmen. As a rule, imitation is more in his line for he learns by imitation from his immediate ancestors. This, of course, does not apply to the sculptor in stone who often used to be an artistic genius and had to be to create the masterpieces that are still to be seen today in the temples of old.

The method of stone inlaying, dealt with more fully in another chapter, has thus been described by H. G. Keene, in his work on the "Stone Industries of Agra":

"The master-workman traces with delicate exactness a pencil outline of the design to be produced upon a slab of the whitest Jaipoor marble. The slab is then handed over to one craftsman, and a collection of jewels to another. The chief jewels used are Agate, Cornelian, Jasper, Bloodstone, Lapis Lazuli, and Turquoise. Each piece has its bed prepared on the master's tracing on the surface of the slab, while it is shaped by the associated workman. As each piece is ready it is handed to the inlayer who fits it into its place with a cement of white lime. It is then covered with a small piece of glass, over which is laid a fragment of burning charcoal. When the annealing process is complete the glass is removed; and, when the whole design has been inlaid in this manner, the surface is rubbed over with a polishing powder and the work is ready. When the cutter and the inlayer have done their res-

pective offices with due skill, no trace of the annealing is perceptible. In second-class work a small rim of cement may always be detected by its greater whiteness, separating the precious stone — whatever it may be — from the bed of marble."

As far as Uttar Pradesh is concerned, stone from the Vindhya range was and is mostly used, some of the most important quarries being Bharatpur, Fatehpur-Sikri, and Agra. White sandstone is preferable to the red so common in the structures of Fatehpur-Sikri, because of its better lamination and finer structure that facilitate elaborate carving. However, white sandstone has the disadvantage of losing strength when saturated with water.

The old sandstone quarries of Chunar have played an important part and have supplied the stone for the architectural monuments of Sarnath and the temples of Banaras. The best Chunar stone used for sculpture and carving is the grey *(zarda)*, the bluish-grey (*sabza),* and the yellow (*khaki*). The coarser red (*gulabi*) and the white are used only for building purposes as these varieties are not suitable for detailed carving.

Soapstone, used for carving small boxes, etc., comes from the quarries at Bundelkhand and the white marble used so extensively by the Mughals is the product of the famous Makarana quarries. Few stones have the lasting beauty and silken sheen of good marble and it lasts much longer than sandstone that is apt to crumble with the decay of ages.

Delicate *jali* work or fretwork tracery in marble or sandstone is a speciality of the Indian stone-mason. It is to be seen in many parts of the country, but was introduced first at Agra and Fatehpur-Sikri by the Mohammedans. Geometrical designs, which are easy to carve, predominate, but there are also many superb examples of motifs based on flowers and foliage as exemplified in the stone-work of Ahmadabad.

We read in the *Journal of Indian Art* (Vol. 1) : "Another decorative art, tracing its descent from the Augustan age of the Mughal Empire, is the *Jali* or stone-tracery, executed both in red sandstone and in the crystalline white marble of Rajputana (now Rajasthan — R.J.M.). The *Jali* is a fine filigree of marble or sandstone fretted into an almost endless network of geometrical combinations. The requirements of the climate of Northern India for some material which should, like glass, afford protection from the weather and at the same time admit free ventilation, have been satisfied by the elaboration of this unrivalled window tracery."

It is presumed that the *jali* was an invention of the Mohammedans to take the place of the figures and human images of the Hindu places of worship as a form of decoration. Whether this is correct or not cannot be said with certainty, but it is true that stone fretwork is not to be generally found in the very ancient Hindu monuments, neither at the Buddhist site of Sarnath, the Jain temples of Deogarh of a later period, nor even the more recent Banaras architecture which definitely bears traces of Mohammedan influence.

However, Vincent Smith thinks otherwise. Referring to Fergusson, he writes : "Pierced stone screens or lattices used as windows were not unknown to Hindu architects, and were specially favoured by the builders of the highly decorated temples in the Mysore, Deccan, or Chalukyan style. At Pattadakal and in the Kailas at Ellora beautiful lattices are to be found. At Belur there are twenty-eight such windows, all different. Some of these are pierced with merely conventional patterns, generally star-shaped, with bands of foliage between ; others are interspersed with figures and mythological subjects."

However, it cannot be denied that the Mohammedan architects ultimately developed this style of architectural decoration to a hitherto unreached level. "Endless variations of geometrical patterns, generally pleasing, although wearisome when examined in large numbers, are the most characteristic form of Muhammadan lattice-work, which is seen at its best in the Gujarat (Ahmadabad) and Mughal buildings. The designs both in Gujarat and the earlier Mughal work have been often influenced by Hindu tradition. The Muslim artists used the lattice, not only for windows, but also for the panels of doors and for screens or railings round tombs with excellent effect." (Vincent Smith.) The famous perforated screen round the simple tomb in the Taj Mahal is a perfect and one of the best examples of this and is an unsurpassed specimen of the art in Shah Jahan's time.

As mentioned above, some of the most beautiful stone traceries are to be found at Ahmadabad, the finest being the semi-circular windows or screens of the mosque of Sidi Sayyid, built round about A.D. 1515, and which Vincent Smith calls "the most artistic stone lattice-work to be found anywhere in the world."

These windows of the Sidi Sayyid mosque are of Gujarat sandstone. "Screens of a similar type, as already shown were a frequent method of enrichment in all the architecture of Gujarat, and they were also the means of providing light and air," observes Percy Brown. "But the patterns of this tracery were usually relatively small, often in square panels while geometrical designs predominated. In the production of the Sidi Sayyid mosque, however, an artist was forthcoming with exceptional vision, who put aside all conventions, and proceeded to treat these stone tympanums as a finely meshed surface on which he could freely express in ornamental form what was in his mind." (*Indian Architecture,* Vol. II.) No wonder these superb examples of the Gujarat stone-mason's art have given this small and insignificant mosque a world-wide reputation.

Jali work is done in marble or sandstone, both being equally suitable as far as technical considerations are concerned. As examples of work in the former, reference may be made to the tomb of Salim Chisti at Fatehpur-Sikri, probably dating from A.D. 1581 (over the lintel of the door is an exquisitely beautiful fanlight of pierced white marble), the tomb of Akbar at Sikandra completed in A.D. 1613 by Jahangir, Itamad-ud-Daulah's tomb of a slightly later

period (A.D. 1626) at Agra, the walls of the pavilion formed of screens of the finest marble tracery, and of course the supreme and incomparable Taj (A.D. 1630-52). The latter, belonging to more or less the same period, is the most beautiful and contains some of the finest examples of stone fretting that can be seen anywhere in the world. The screens and the traceries at the places mentioned above are in many different geometrical patterns, often two distinct designs running into each other in the same screen and blending into a harmonious whole, one within the other ; this is to be found in some of the beautiful stone structures of Fatehpur-Sikri. Often a floral pattern called the *subacka* runs through a geometrical one and a beautiful example is to be seen in the Jasmine Tower in Agra where Emperor Shah Jahan spent the last remaining years of his life in confinement, and also in the Taj. But on the whole, the innumerable purely geometrical patterns are not only more numerous, but seem to have been the more popular. They are named after the number of angles in the geometrical figures : *chemans, badru, athwans,* etc.

Though perhaps the finest examples of *jali* work are to be found executed in marble, there are no mean specimens in sandstone existing today, especially at Fatehpuri-Sikri, Agra, Mirzapur, and Muttra, the finest perhaps at Chunar, in the stonework screen surrounding the mausoleum of Shah Kasim Suleimani that stands in a *dargah* or walled enclosure. It is a sad fact that standstone is not as durable as marble, and these fine specimens are bound to crumble away with the passage of inexhorable time.

Like his brother stone-mason, the *jali* worker first draws the design on the stone, using a compass and a right-angle for greater accuracy, although this is done sometimes by eye alone, true not so perfectly. The craftsman then cuts through the stone with a cold chisel, the *tanki* and the hammer (*hatora*). In the case of a thick slab of stone, a borer or *barma* is first used and the pattern pierced half way through from one side and then from the other. Once the design has been cut through, the design is made even and perfect with different kinds of chisels and given a final polish with water and a kind of abrasive stone that comes from Jubbulpore. It is surprising that a good carver hardly ever breaks the stone he is working on, unless of course the material itself is faulty and has interior flaws.

Although stone *jali* work is almost entirely used for architectural purposes, in Agra there is a small trade in marble, soapstone, and alabaster fret-cut boxes and other small articles, especially meant for the tourist trade.

"*Jali* work is the Oriental equivalent to the stained glass of our European churches," H. S. Crosthwaite observes. "It would be futile to compare the merits of the two. The former is the Eastern artist's device to subdue the fierce heat of the sun, while giving free access to the breeze ; the latter is intended for a climate where wind and cold and rain predominate. Both alike, however, give that dim religious light, that feeling of subdued calm, which appeal so strongly to the emotional part of man. Gazing at the beautiful west window of New College Chapel, lighted by the setting sun, or standing by the cenotaph of Akbar with its exquisite screens of pierced marble, we feel alike that religious emotion which art at its highest always produces in the mind of man."

In India the chief centres of stone-carving are :

Udaipur, Bikaner, Jaipur, Ajmer, Jodhpur, and Jaisalmer, all in Rajasthan : famous for marble and sandstone work.

Bharatpur, Dholpur and Gwalior : here only sandstone is used.

Delhi : today produces only small articles and its work is modern and more suited to the tastes of the twentieth century.

Agra, Mathura (Muttra), and Mirzapur in Uttar Pradesh : this is perhaps the most important centre as far as stone-carving is concerned. The style is almost pure Mohammedan ; the designs are good examples of pure arabesques. Here also *jali* work is common. Mathura has been a centre of stone-carving since very early times. "Agra is a city of masterpieces of Mughal art, Banaras a city of Hindu shrines, but there is no city in these provinces that compare with Muttra in the beauty of her houses. Even the poorest houses have a stone gateway with a simple ornamentation of rosettes, while the houses of the rich people are decorated with the most intricate and beautiful carving." (H. S. Crosthwaite.) Agra is deservedly considered the most famous centre of stone work, together with Sikandra and Fatehpur-Sikri. It is justly famous for its perforated stone fretwork and its inlay work and marble mosaic. At Mirzapur there are good examples of stone-carving, mostly by Hindu workmen working under Mohammedan supervision as is evident from the designs, the usual arabesques and other geometrical patterns. Chunar nearby is another centre.

Chana and Bhandara in Madhya Pradesh.

Ahmadabad and Kathiawar in Bombay State.

Banaras : outside of Agra and Mathura, Banaras has perhaps more good stone-carving than any other place. Some of the notable structures in an earlier Hindu style are the Durga or "Monkey" temple, in red sandstone with a profusion of carved figures and deities ; the Man Mandir observatory established by Raja Jai Sawai Singh ; the Briddhkal temple, probably the most ancient of the Hindu structures, said to have been built by an old and infirm raja who was restored to youth and vigour by Mahadeva, the name Briddhkal meaning "the fate of old age." The more modern structures show a pronounced Mohammedan influence.

Belur, Halebid, and Somnathpur.

Warangal and Golconda.

MUSLIM CALLIGRAPHY AND BAS-RELIEF SCULPTURE

Although in this work we are not concerned with such pure arts as painting, sculpture, etc., a brief note on the calligraphy of Mughal times, whether used as architectural decoration or for the embellishment of manuscripts, may not be irrelevant here.

Vincent Smith points out : "The Arabic alphabet in its various forms, as used for writing both the Arabic and Persian languages, is so well adapted for decorative purposes, that almost every Muhammadan building of importance is freely adorned with texts from the Koran or other inscriptions arranged decoratively to form part of the architectural design, and often signed as the work of famous calligraphists. Perhaps the finest example of early Indian calligraphic decoration in architecture is the great arch of the mosque at Ajmer. Here the outer line of the writing is in the angular *Kufic* script ; but the other lines are in the more rounded *Arabic* characters."

Mention must also be made of the *Tugra* or *Tughra,* a form of Arabic calligraphy used for ornamental purposes, the letters forming various animal and floral forms. Orthodox Mohammedans, forbidden the use of pictures as wall decorations by the tenets of Islam, often use the *tugras* to serve the same purpose and decorate their walls. Most of the *tugras* are in the shape of a lion, although forms of deer, the camel, the horse, and the elephant, as well as birds, are also common. Chaubey Bisvesvar Nath has emphasised the point that "the lion is composed of the letters forming the famous verse called Nai-i-Ali. The reason why a lion was used to inscribe the verse is that Ali's name was 'Asad-ullah.' Asad in Arabic means 'a lion', and 'Asad-ullah' therefore means 'Lion of God.' "

The art of calligraphy is certainly of Persian origin, but was greatly esteemed in the Mughal courts. Many of the emperors cultivated libraries of old manuscripts collected from the different countries of the East, especially Turkestan and Persia. And though the Muslim calligraphy of India of those days was not of the same high quality as those of Samarkand and Bokhara, the Mughals excelled in the production of beautiful illuminated manuscripts, with miniature paintings and calligraphy on the same or opposite pages.

Little need be said about the bas-relief sculpture of the Mohammedan era, which as a form of architectural decoration is as praiseworthy as the Muslim sculpture in the round is poor. To quote the famous authority, Vincent Smith : "The best Indian specimens, with which alone we are concerned at present, could not be surpassed as pure decoration. Among all the many varieties of Muhammadan decorative designs none are more agreeable than the best of those carved in relief on the Mughal buildings, from the time of Akbar to that of Shahjahan. The work of Akbar's time being more naturalistic, is more interesting than that of the later period, which is formally conventional, with a tendency to monotony." As a superb example he refers to the white marble cenotaph of Akbar, in the middle of the top story of his mausoleum at Sikandra and quotes :

"The two oblong sides and the top are adorned with the ninety-nine tiles of the Creator in alto-relievo, set in delicate Arabic tracery. The words *Allahu Akbar jalla jalalahu* are inscribed on the head and foot, set in panels surrounded by most beautiful and delicate floral ornamentation. The carving, which is most exquisitely done, is in very low relief, and savours of Chinese workmanship. Amongst other flowers and plants portrayed one recognizes the lily, the almond, and the dahlia, all of which are found carved or painted upon Akbar's palace at Fatehpur-Sikri. In the left-hand corner of each of the panels, cloud-forms carved after a most distinctive Chinese type are noticeable. Similar cloud-forms are met with upon the dado panels in the Turkish Sultanah's house at Fatehpur-Sikri . . ." (*Akbar's Tomb, Sikandarah.*)

The reference above to Chinese influence or workmanship should not lead the reader to conclude that Chinese craftsmen were employed. After all, similar Chinese traces also appear in Persian art, yet there are no indications that Chinese artists or artisans ever worked in Persia.

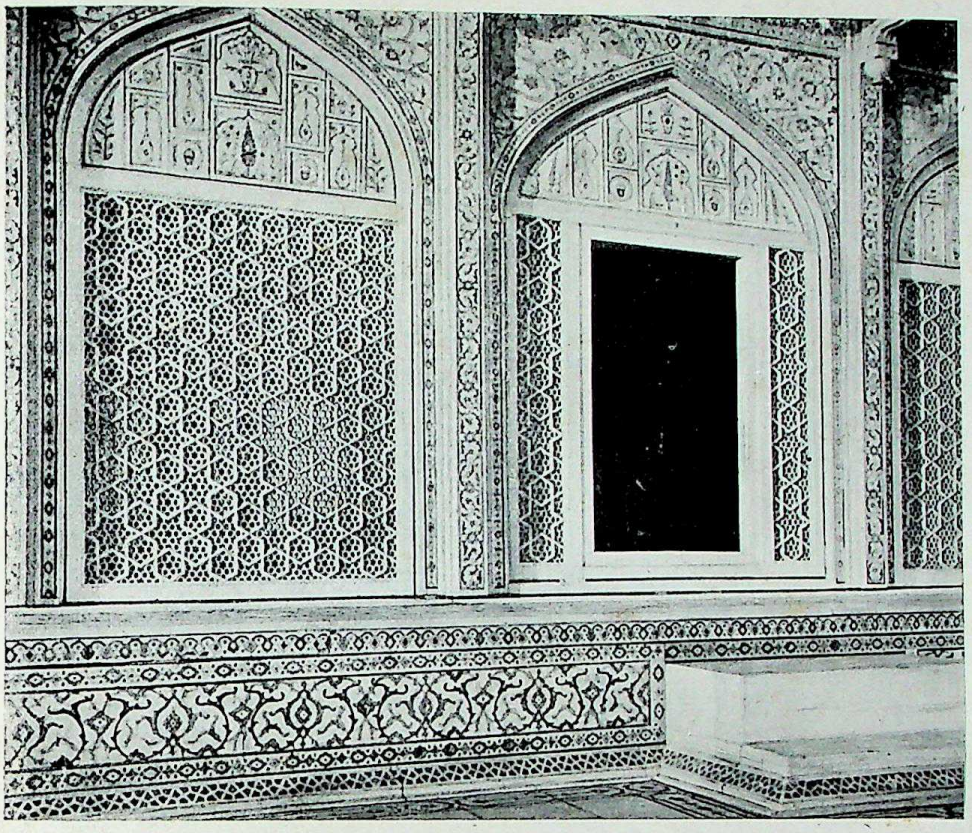
The use of bas-relief sculpture as a form of architectural decoration showed a decline by the time of the beauty-intoxicated Shah Jahan who relied more on stone inlay for his effects. But, it must be pointed out that the dados of Shah Jahan's greatest achievement, the superb Taj, for ever bathed in sublime loveliness, have been beautifully ornamented with conventionalised flowers cut in low relief on the red sandstone.

The bas-relief sculpture at Ahmadabad where Mohammedan influence was very great, however, exhibits a more Hindu artistic feeling, for here perhaps we see the best synthesis of the Hindu and the Muslim.

MINOR STONE CRAFTS

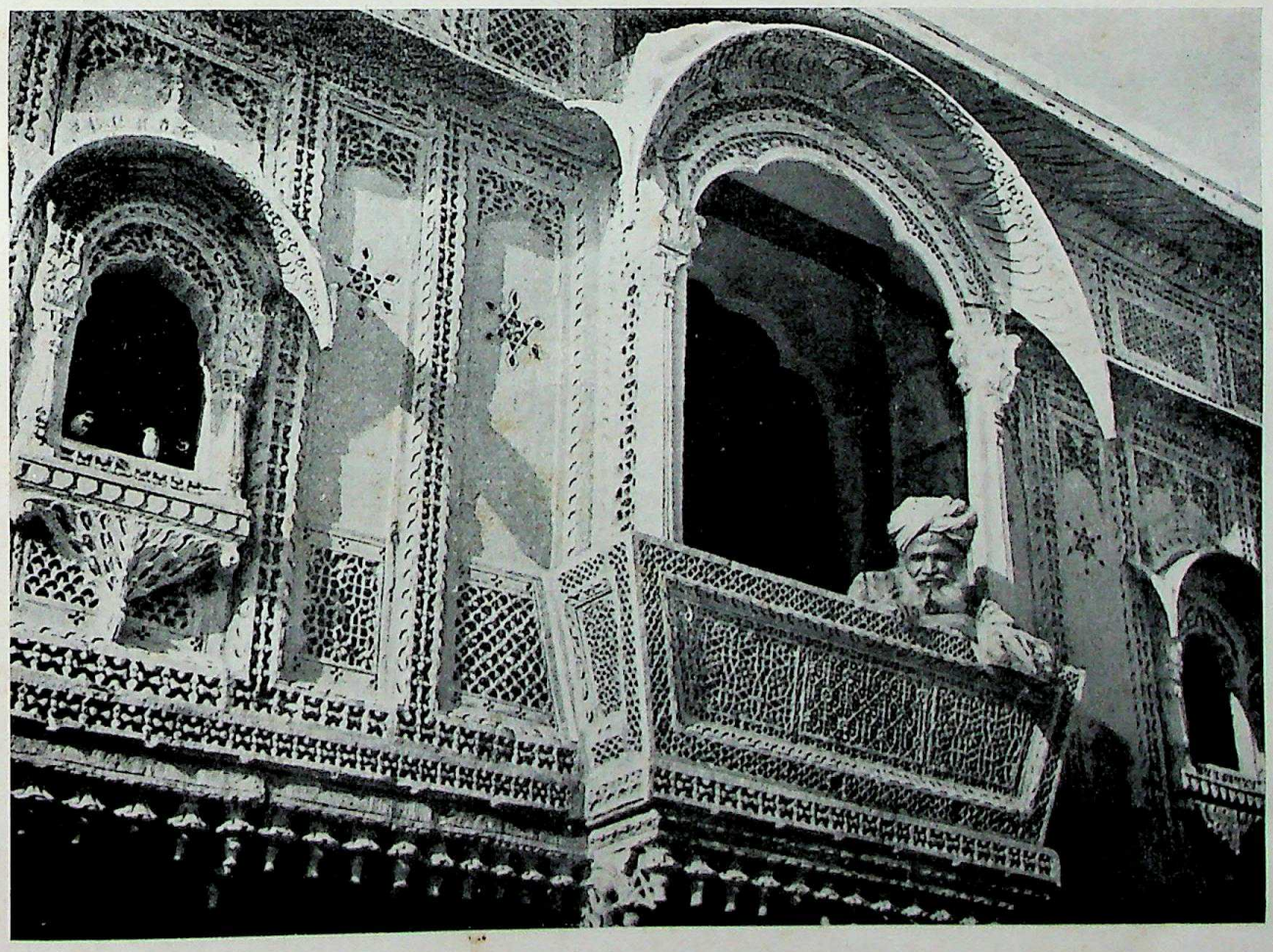
Sir George Birdwood writes : "The agate vases of Baroach and Cambay have been famous under the name of Murrhine vases from the time of Pliny." Some of the best agates and carnelians are found near Broach in Western India and are used for making cups and saucers, knife-handles, paper weights, beads, bangles and other ornaments. The chief centres of minor stone crafts which include such articles as flower vases, boxes, plates, candlestick stands, brackets, lamp stands, marble figures, images of gods and goddesses, made of soapstone, alabaster, marble, sandstone, and chlorite, are Bengal, Agra, Mirzapur, Bharatpur ; Jodhpur, Jaipur, Jaisalmer, the last three especially for marble ; Agra and Mysore for stone inlay work ; and Alwar and Udaipur for glass mosaics.

Green jade called *sang-i-yesham* is used for making very pretty articles like book ends, tumblers, *surahis,* hukka bowls, etc. This is really a false jade, a pure form of serpentine. It is softer than true jade and therefore easier to work with. Agate is also used, as well as cut garnets for necklaces and other articles



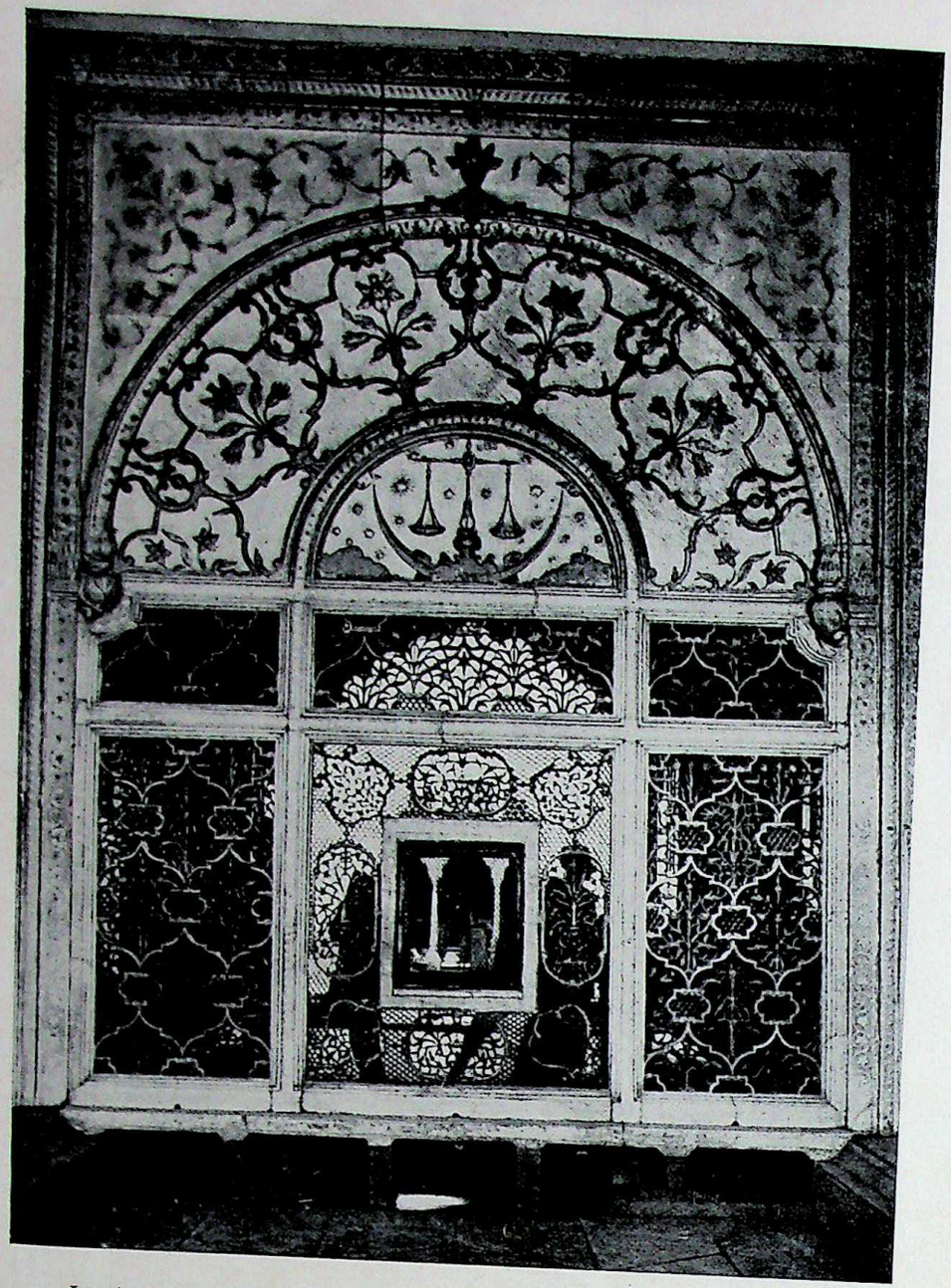
Marble lattice-work windows and inlay work of the mausoleum of Itmad-ud-Daulah at Agra.

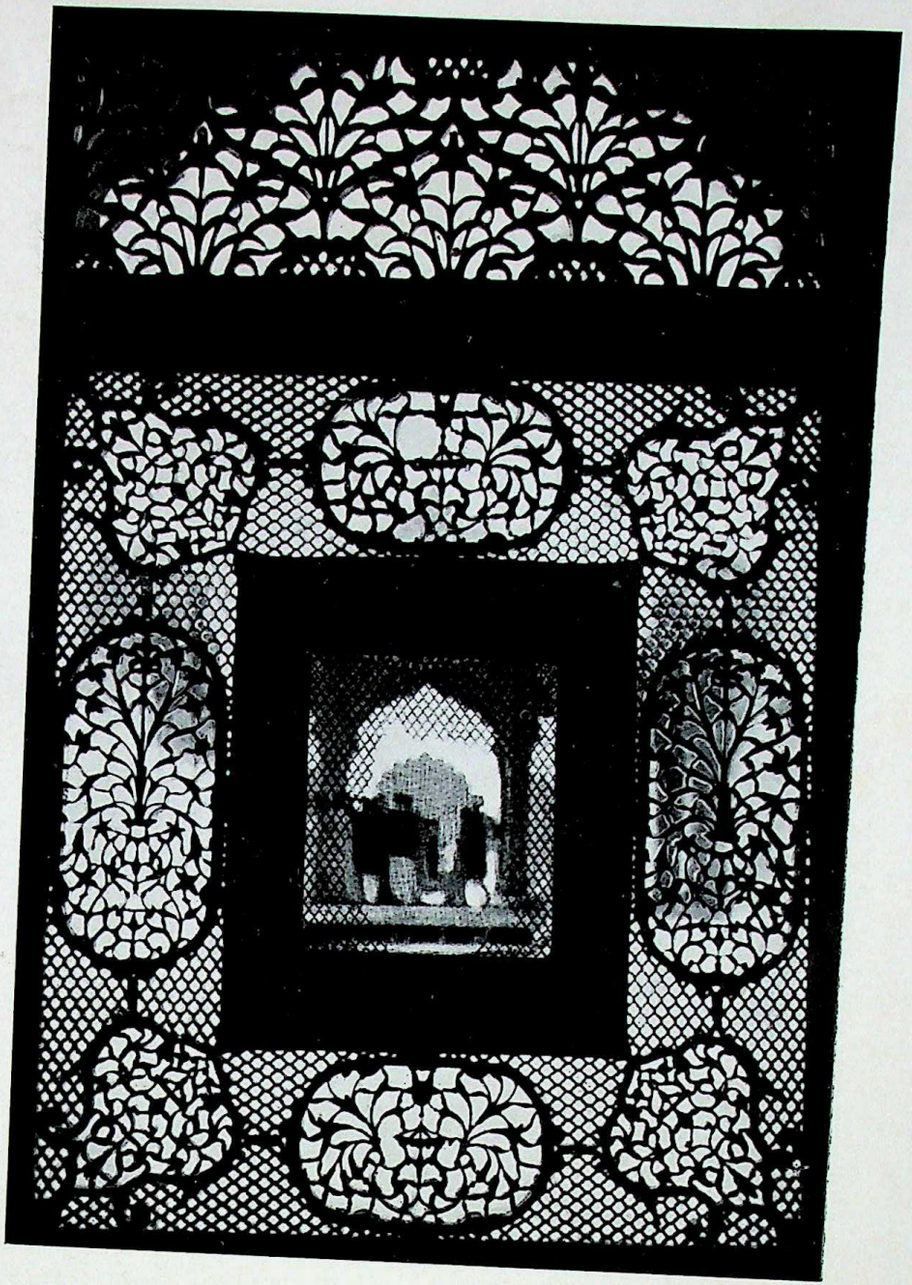
(*Photo : M. V. Vijayakar*)



Jali work of a yellow-brown sand-stone house facade in Jaiselmer, Rajasthan.

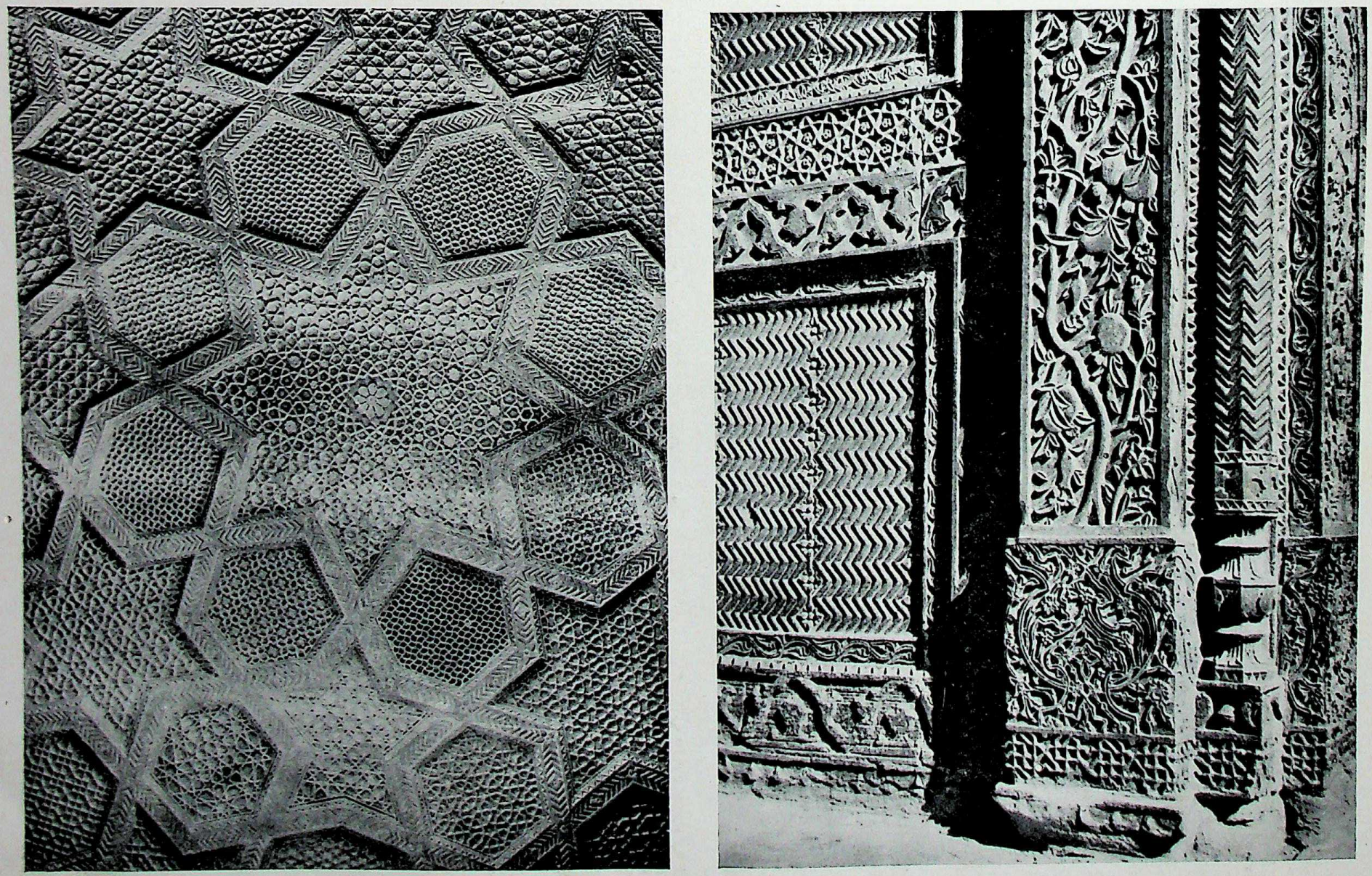
(*Photo : B. Bhansali*)





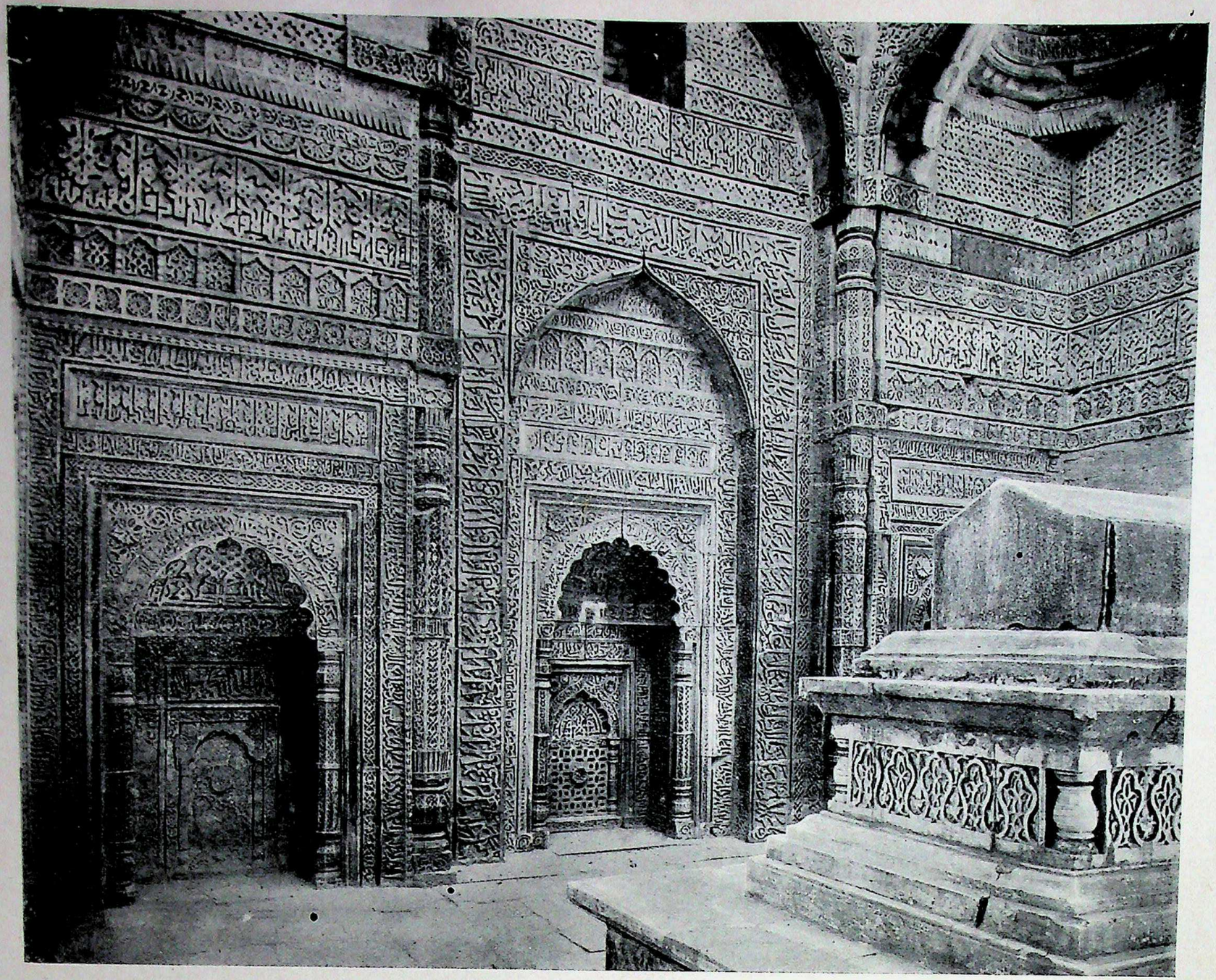
Interiors of the Diwan-i-Khas, or Hall of Private Audience, Delhi, the columns of which are perhaps the most graceful of all produced during the reign of Shah Jahan. Of particular interest are the lace-like marble fretwork and the inlay decoration.

(*Photos : A. L. Syed*)

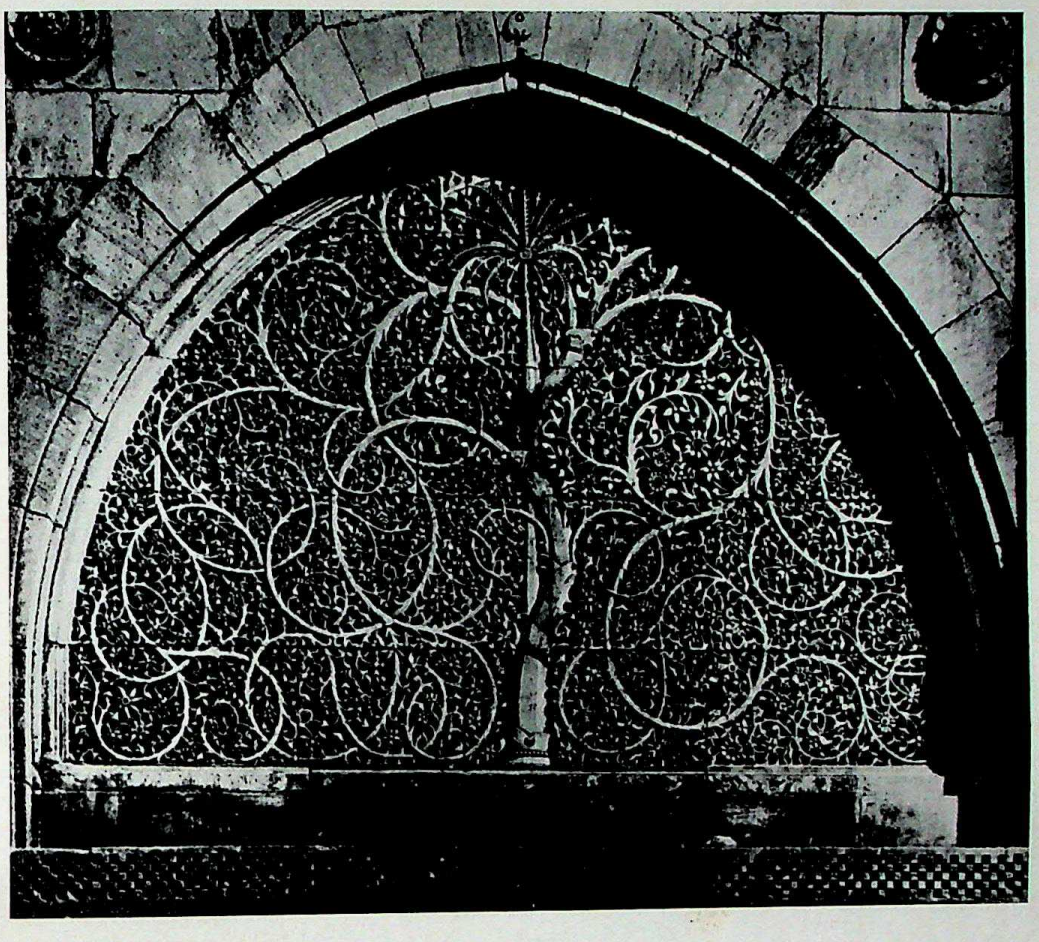


Jali work stone ceiling and outer details of bas-relief stone carving of Turkish Sultana's house at Fatehpur Sikri

(*Copyright reserved by the Department of Archaeology, Government of India*)



A fine example of early Muslim bas-relief calligraphy in stone. The interior of the mausoleum of Shams-ud-din Iltutmish (Altamish), Delhi, erected sometime before A.D. 1235. The inside cubical hall of thirty feet side, is elaborately sculptured, with the sandstone walls relieved with insertions of white marble. Extracts from the Koran in Kufri, Tugra and Nashtalik characters are the principal motifs, with interspersed geometrical and conventional diapers. The inscriptional mural decoration of the interior is an exceptionally fine example.



The famous perforated stone window, in Siddi Sayyed's Mosque in Ahmadabad.

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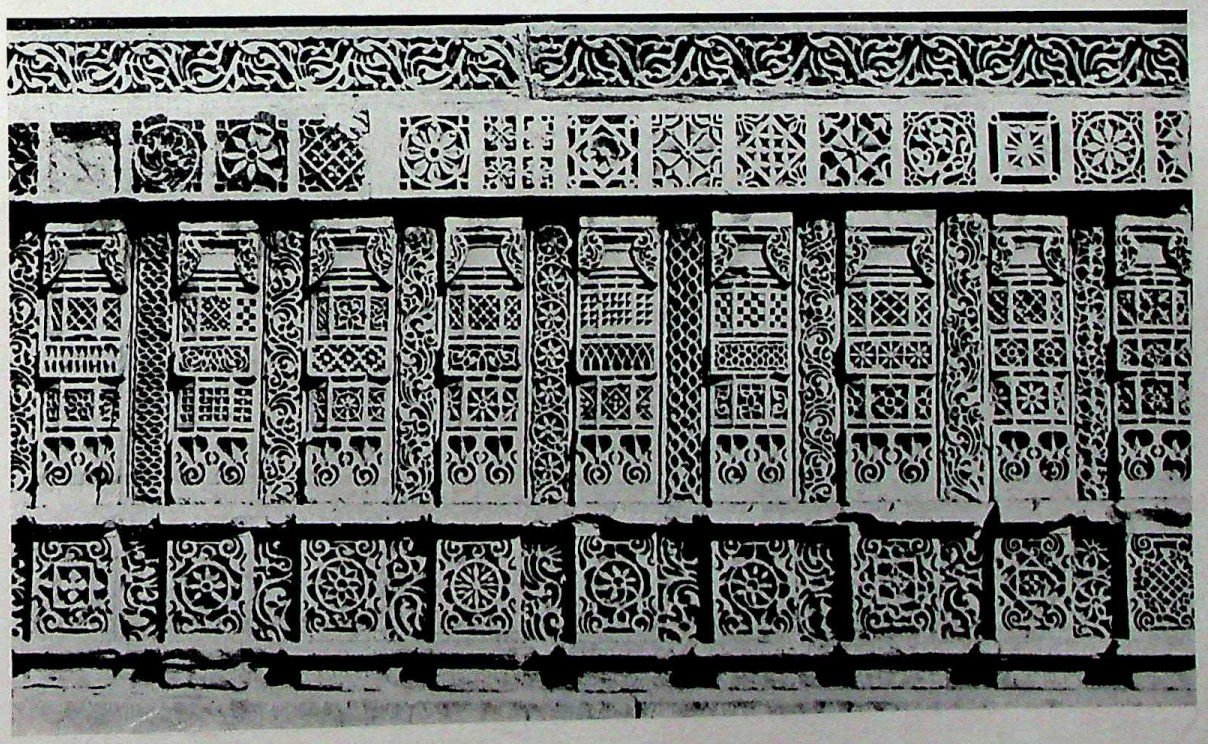
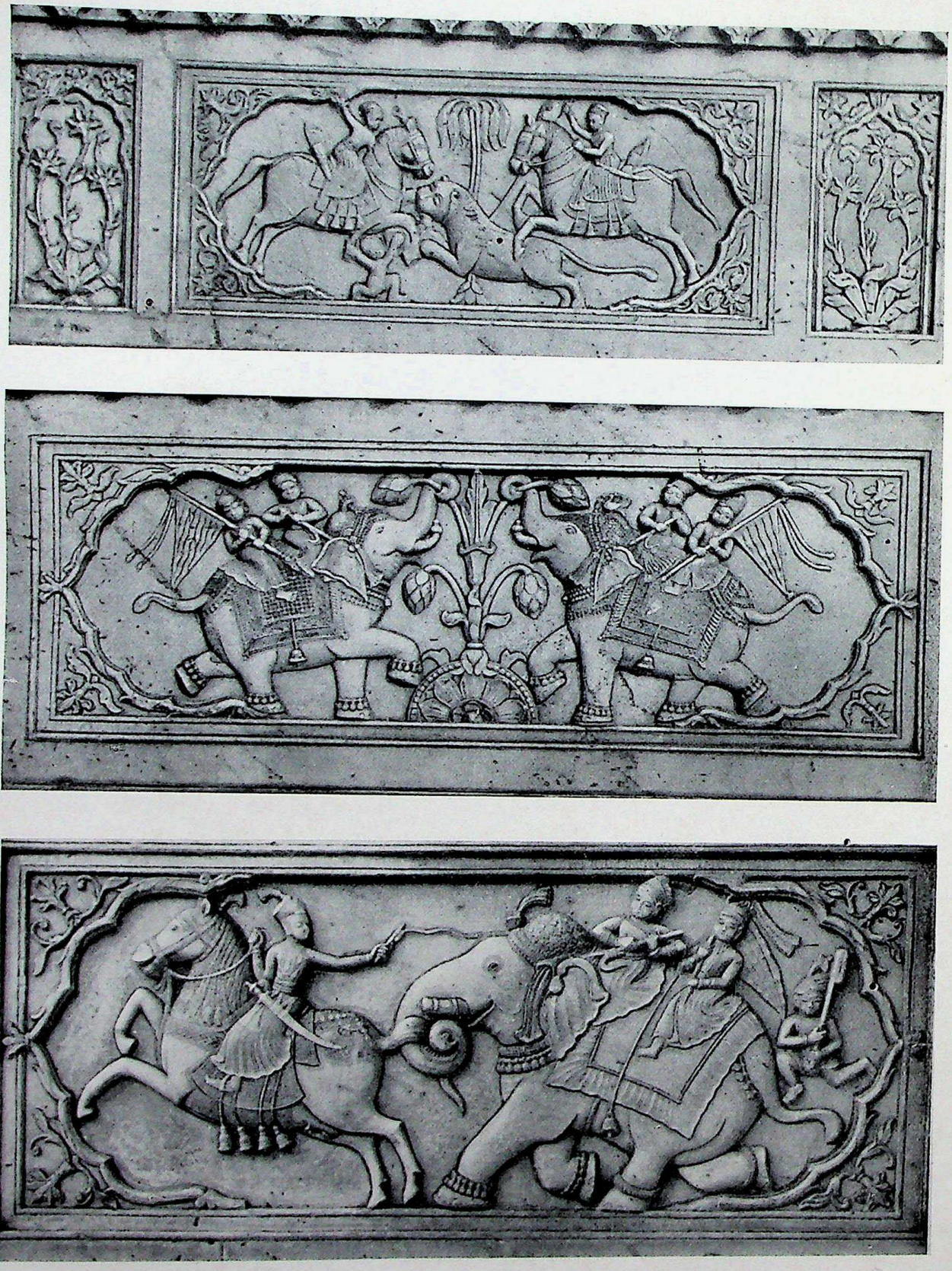
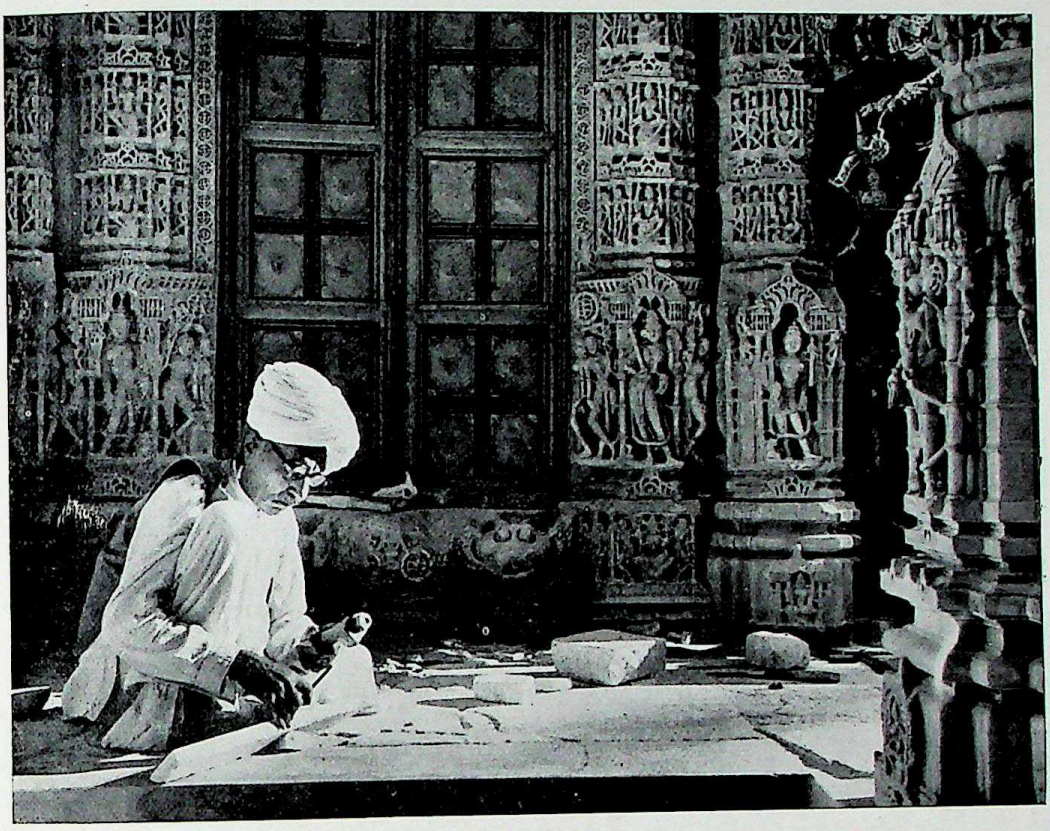


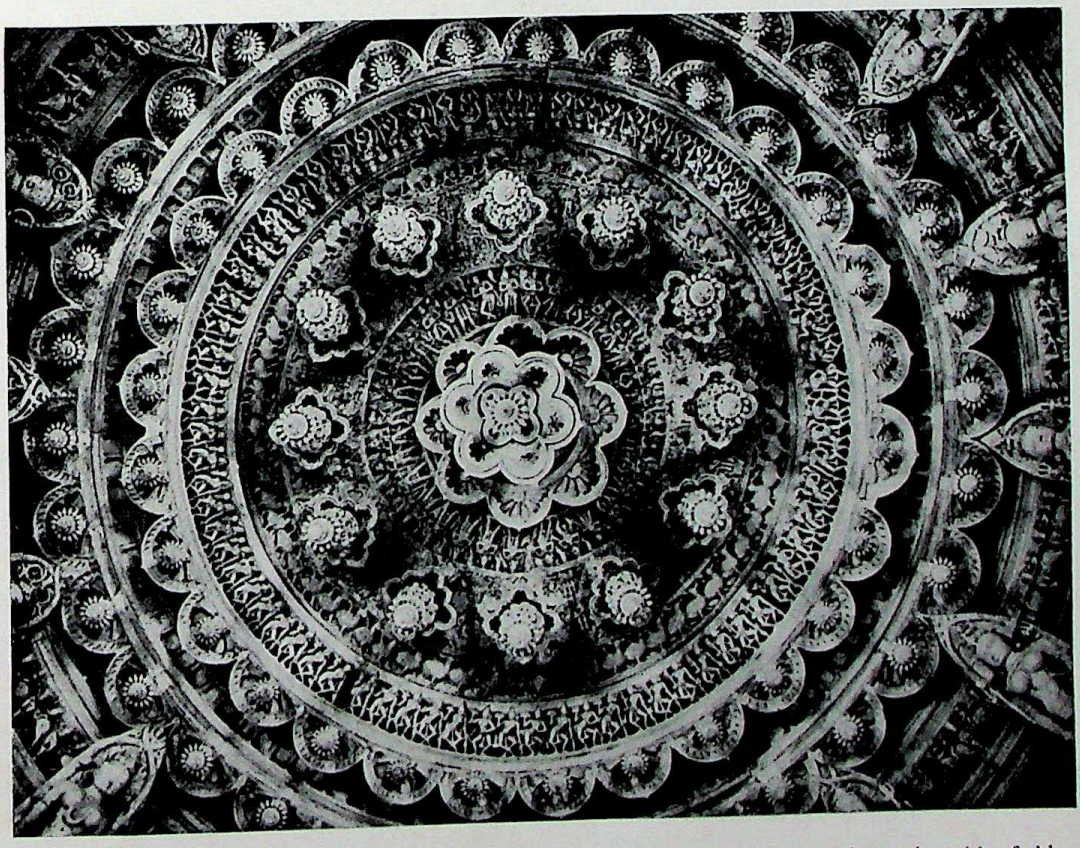
Muslim bas-relief stone carving on Rani Sipri's Mosque, Ahmadabad.
(*Photo : A. L. Syed*)



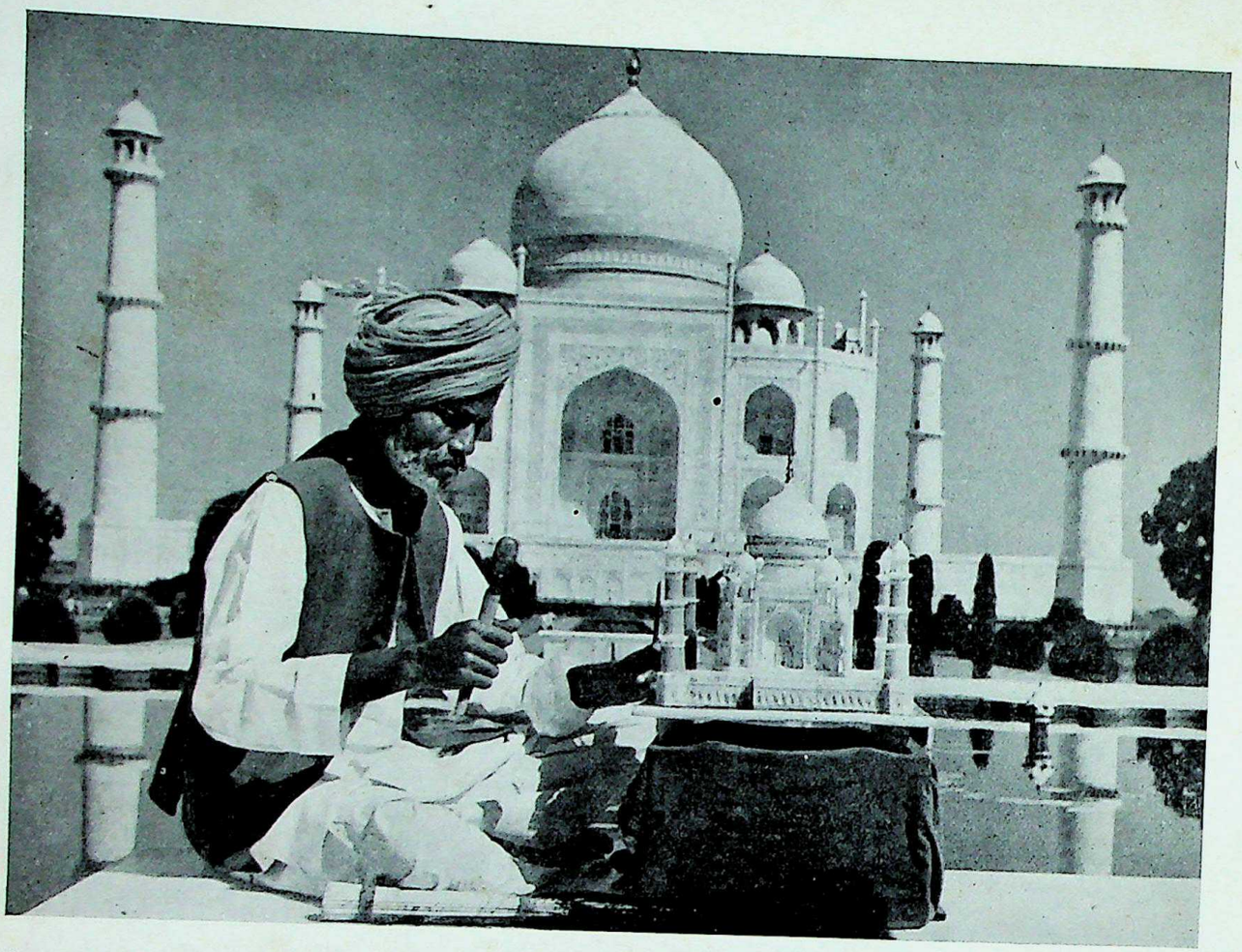
Marble carvings in low relief from the *chhattri* or cenotaph of the old Maharajah, outside the city walls of Jaipur in Rajasthan. Note the spirited carving of horses, lion, and elephants.

(Photos : R. J. Chinwalla)

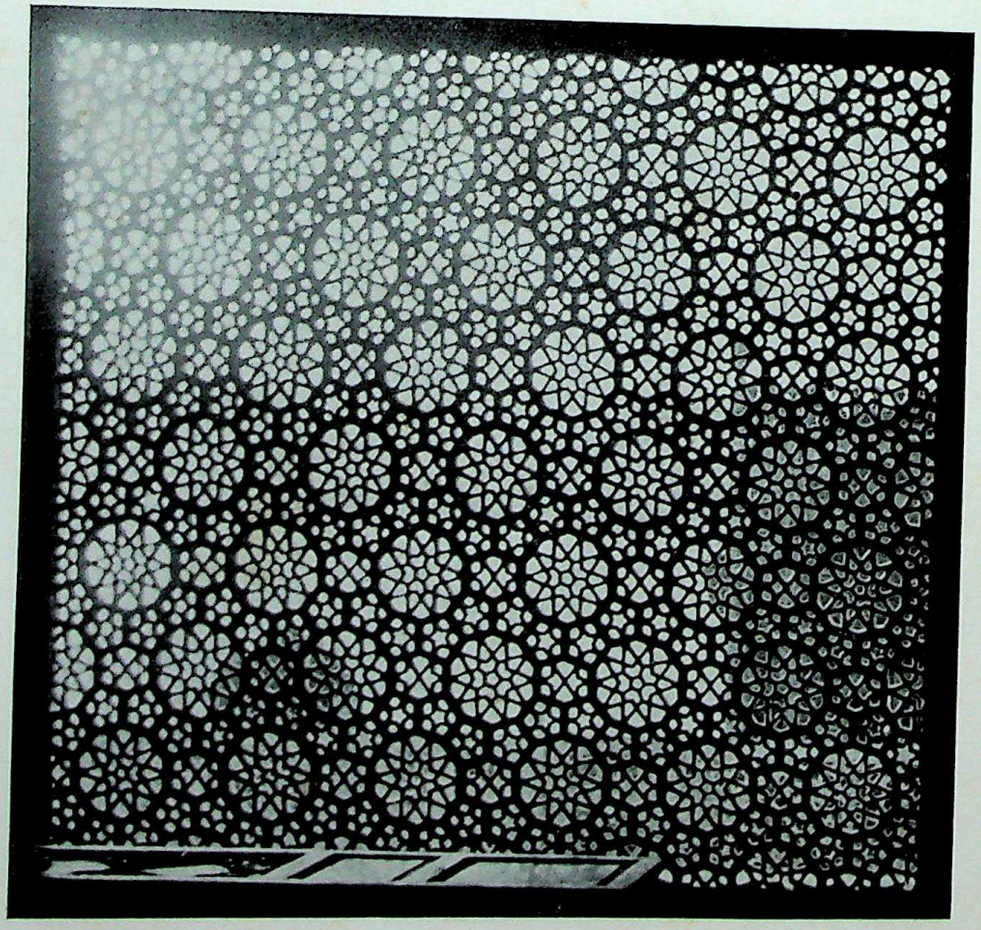




Top : A marble carver of Mount Abu at work in the temple, surrounded by the glory of carved marble of old. (*Photo : M. V. Vijayakar*)
Bottom : A superlative carved marble ceiling in Dilwara Temple of the Jains at Mount Abu. Consecrated in the 13th century, the temple "for minute delicacy of carving and beauty of detail stands almost unrivalled." (*Photo : A. L. Syed*)



The Taj model-maker in marble before his supreme inspiration.



Jali work (inside view) from the top storey of the mausoleum of Itmad-ud-Daulah, Agra.
(*Photos : M. V. Vijayakar*)

of personal adornment. It is said that probably the huge tortoise which is in the South Kensington Museum belongs to pre-Mughal times, but many fine amulets, dagger handles, bowls, etc., superbly carved in jade, have come down to us from Mughal days. Sometimes these articles are further ornamented with precious or semi-precious stones.

In many places of the Punjab, a false jade is used to make boxes, caskets, handles for walking sticks, knife-handles, paper-weights, necklaces, bracelets, etc. In this connection, J. L. Kipling has written :

"The green, jade-like stone used at Bhera has not yet been assigned its proper name ; it is not true jade, nor do authorities on the subject admit it to be plasma . . . Other stones resembling serpentine and purbeck marble are used as handles and also in the fashioning of toys and small objects, as paper-weights, by the lapidary cutters of Bhera."

Jaipur's garnet work used to be an important industry. The stones found nearby vary from yellow to a purple shade, the latter being more desired. The stone work of Jubbulpore also deserves mention. Paper-knives, studs, knife-handles, and small ornaments are made from agates and similar stones found in the bed of the Narbadda river. J. B. Fuller, many years ago, mentioned the onyx beads "which are to be found at some places in the Narbadda valley. They are bored and have evidently been used in former days as ornaments, but are now found detached, and, as a rule, buried at a little depth below the surface of the ground. They are known (among the Muhammadans) by the name of *Dana-Sulaimani,* having, according to common belief, fallen from the throne of Solomon when passing over the Narbadda valley in one of its aerial flights."

During the fag end of the last century, Sir George Birdwood wrote : "Animals are carved in black chlorite at Gaya in the Patna division of Bengal ; and in white marble and reddish sandstone at Ajmir and other places in Rajputana (now Rajasthan — R.M.) ; and we find the same truth of representation in these stone carvings as in the best ivory carvings of Amritsar, Benares, and Travancore. In Rajputana also idols are largely carved in white marble, and brilliantly coloured in red, green, yellow, and blue paint and gold. Jade is still carved in Cashmeer. At Fatehpur-Sikri models in soapstone are made of the celebrated Mohammedan ruins of that city ; and it is also carved into ornamental dishes, inkstands, and other objects."

In Manbhum and Singbhum districts of Bengal soapstone is abundant and carved into cups and plates and dishes.

Today, rock-crystal is carved into beads, necklaces, buckles, dagger handles, etc., in many parts of the country, the chief centre being Jaipur.

The curious coloured stone-ware of Cambay (Khambat) in Gujarat and of Banda in the north deserves mention. These stones are collected near the former and are of two kinds : those which require no baking and those which do to bring out their colours. Of the first are a kind of onyx called *bawa-ghori* or *mora,* a yellow semi-translucent stone called *rori* or *lasania,* and *chashamdar,* a kind of cat's-eye. Of the stones of the second type, the yellow ones turn rosy, and the orange ones into red. The pebbles with cloudy tints turn brightly veined in red and white.

Reference to these stones is to be found in an old issue of the *Bombay Gazetteer :*

"By exposure to sun and fire, among browns the light shades brighten into white, and the darker deepen into chestnut. Of yellow, maize gains a rosy tint, orange is intensified into red, and an intermediate shade of yellow pinkish purple. Pebbles in which cloudy browns and yellows were at first mixed are now marked by clear bands of white and red. The hue of the red carnelian varies from the palest flesh to the deepest blood-red. The best are a deep clear and even red, free from cracks, flaws, or veins. The larger and thicker the stone, the more it is esteemed. White carnelians are scarce. When large, thick, even-coloured, and free from flaws, they are valuable." (J. M. Campbell.)

Paper-cutters, knife-handles, paper-weights, necklaces, bracelets, brooches, handles for dagger, tops of walking sticks, etc., are generally made.

Figure carving and statuary is no longer as popular in India as in the days gone by, probably due to Mohammedan influence as Islam forbids the representation of the human or animal figure. When, however, such figures, especially of animals or birds, are used, they are generally shown subtly introduced in the floral design. In this connection it is interesting to note Vincent Smith's statement : "It is a common error to suppose that the ancient Semitic prohibition of images, repeated in the Koran, invariably prevented Muhammadan artists from representing the forms of living creatures, real or imaginary. As a matter of fact, the prohibition, although respected as a rule, has been disregarded frequently in almost every Musalman country from the earliest ages of Islam to the present day . . ." But whatever the injunction of Islam, in the words of H. S. Crosthwaite, "as long as the Hindu religion remains, there will always be a large demand for the statues of popular deities, such as Ganesh and Hanuman."

Much of the Hindu stone figure carving is religious in character, unlike that of the ancient Greeks and Romans. And each such figure has an inner meaning for the student of Indian iconography. But "even for the ordinary layman this statuary possesses a fascination which in ultimate analysis is due to the human interest, . . . that attracts alike the artist and the Philistine."

The *Silpa-sastras* have laid down clear rules about the proportions of the figure, to be strictly observed by the workman. The body is divided into *talas* or parts, each part of the body being assigned a certain number of *angulas* (one-twelfth of a *tala*) :

Face, 12	Shoulder, 4
Neck, 4	Upper extremity, 36

Width of chest, 20 Thigh, 24
Width of waist, 15 Leg, 24

"As to the forms of the members of the body, the Shastric divisions are equally precise," writes P. C. Mukherji. "The forehead should be somewhat protuberant and shaped like the half moon, the upper arch being limited by the hair and the lower by the eyebrows, that are drawn like a bow, of which the inner end should be curvilinear and the outer extended towards the ear. The eyes, which are large, are generally compared to the lotus or to the eyes of a deer. The opening of the mouth is small, and the lips, formed like the petal of a flower, show a smile in many examples. The nose is curved, like the bill of a parrot or the flower of the sesamum. The breast is very prominent, the waist slender, and the hips large ; the arm is made supple and round. In short every limb is round. Hard and stiff outlines are seldom found in Indian sculpture." (*Antiquities of Lalitpur.*)

The animal figures are also more or less conventionalised, fidelity of form or expression not being the aim of Hindu sculpture. Yet, "from the earliest times the native sculptor has portrayed animals with great felicity. On the recently discovered capital of the Asoka pillar at Sarnath there are sculptures of animals more true to life than the modern conventional figures. The lions on top of the capital are, it is true, of the regular Persepolitan type ; but the horse, lion, bull, and elephant on the panel beneath are exectued in the most natural manner." (H. S. Crosthwaite.) Among animal forms, the most popular are those of elephants, bullocks, monkeys, horses, parrots, peacocks, crocodiles, fish, and lions, and perhaps the elephant is the best sculptored of them all.

The bullock, the common beast of burden in this country, is naturally represented rather well, as are also the horse and the lion. Yet surprisingly, the tiger — the most representative of the Indian beasts of prey — hardly appears anywhere. The peacock and the parrot can be seen very often in ancient sculpture, even in the Mohammedan period. In much of the Mathura sculpture, the peacock and the parrot will be seen neatly fitted into a background of foliage or scroll work. Both the Mathura and Mirzapur carvers were apparently experts at representing the peacock, generally shown with the tail erect and fanned in all its glory. One of the oldest of animal figures is probably that of the crocodile, often portrayed with an obvious grotesqueness. It will often be found carved at the base of a spandrel, with scrolls or floral motifs issuing from its snout.

Soapstone of a warm light grey tint is used extensively in North India for the making of small articles like boxes, trays, paper-weights, models, animal figures, etc. It comes from Rajasthan and its tough texture "stands like leather, though it cuts like cheese." The patterns, floral or arabesque are cut beautifully sharp and clear in its satiny surface.

Jaipur has already been mentioned as one of the chief centres of minor stone crafts, and is especially noted for its gods and goddesses, human and animal figures. As T. H. Hendley says, "Jaipur supplies most of Brahmanical India with idols in white marble, plain or coloured and gilt ; in red or black marble ; and in Dungarpur chlorite, a soft and easily worked stone which turns black when oiled, rubbed with lamp-black and charcoal, and polished. The purest white marble is brought from Makrana . . . but a much liked white marble, often veined with blue, of a cheaper kind, is obtained from Raialo on the Alwar border." Nearby is also found black marble of which figures of animals as well as idols are carved. The red marble from the same place is usually cut to produce figures of camels and plates. The carved images are coloured and gilded by the *chiteras* or painters.

Cups and saucers as well as boxes, trays, etc., are also made at Jaisalmer. These are of yellow limestone, blended with a substance which looks like red ochre, and other similar stones. Idols and articles of use are also commonly made in many places in southern India.

In the north, poor replicas of the Taj, of inferior workmanship, are rather too common — models hastily made for the undiscerning tourist trade — models that cannot do justice to the dignity, simplicity and utter loveliness of Shah Jahan's greatest creation in glistening marble.

Stone work is also widely found in Orissa, Puri being famous for carvings of gods and goddesses and representations of Orissan temple sculptures in chalkstone and soapstone. The art has been carried to a stage of perfection and exquisite figurines are produced for general sale. Even the women are experts at this and a large number of figures are produced annually for trade in the local bazaars. Often, these white stone figures are buried in fire made of cow-dung or rice husks to blacken the surface which gives them an unusually rich effect. In some parts of Orissa, a black chlorite is found and this also is used for carving.

IVORY, TORTOISE-SHELL, BONE AND HORN CARVING

An inscription at Sanchi (c.200-150 B.C.), dedicating a bas-relief, mentions a "Guild of Ivory Carvers" of the nearby city of Vidisa, modern Besnagar. This fully testifies to the antiquity of the craft of ivory-carving and the social status of the ivory-carvers of those early days, meriting a special mention. In the *Ramayana* reference is made to ivory-carvers among other trade guilds. All authorities now agree that ivory-carving was practised in ancient India. The Indian ivory statuette found at Herculaneum and probably dating to the 1st century A.D. and the ivory plaques discovered at Begram (2nd century A.D.) further testify to the antiquity of the craft in India. The classic Sanskrit work, *Brihat Sanhita,* mentions ivory to be the best material for the making of bedsteads. It advises that the legs of the bed should be made of solid ivory, and the frame-work of fine wood, inlaid or veneered with thin sheets of the former.

In the drama, *The Little Clay Cart,* probably dating from the 1st to the 5th century A.D., its royal author King Sudraka mentions the "high ivory portal" of a courtesan's house.

Few examples of ancient ivory work is known. The chessmen made of ivory and discovered at Bramanabad in Sind perhaps date back to the 8th century. But the ivory inlaid doors of Asar-i-Sharif palace in Bijapur must have been made as late as A.D. 1580, or even later.

Terry in his "Voyages to the East Indies" (A.D. 1655) tells of the skill of Indian craftsmen in making "cabinet boxes, trunks and stand dishes, curiously wrought within and without; inlaid with elephant's teeth or mother-of-pearl, ebony, tortoise-shell and wire, etc."

The Portuguese traveller Paes has described a chamber in the Vijayanagar palace as "all of ivory, as well the chamber as the walls from top to bottom, and the pillars of the cross-timbers had roses and flowers of lotuses all of ivory, and all well executed, so that there could not be better."

In the not so distant past, the chief sites of ivory-carving were Amritsar, Patiala, Delhi, Banaras, Lucknow, Murshidabad, Surat, Ahmadabad, Balsar, Sattara, Travancore, Vizagapatam, Vizianagram and Mysore, and even today they have a certain importance. Some of the finest examples of inlaid ivory work can be seen in the Golden Temple of Amritsar — the chief holy centre of the Sikhs. The objects generally produced were and are richly caparisoned elephants, cows, peacocks, tigers, gods and goddesses, human figures, all in the round; and mythological, festive and ceremonial scenes carved in low relief. Carved ivory fans used to be the speciality of Sylhet in East Bengal, now a part of Pakistan, and ivory bracelets that of Jodhpur and Ratlam. Vizagapatam is famous for its veneered ivory work. Rajkot produces carved combs, the Kathiawar regions knife-handles, Baroda spoons; buttons, powder-boxes, caskets, and umbrella handles mostly come from Ahmadabad and Surat, and fine ivory bangles from Cuttack, all displaying fine finish and excellent craftsmanship. Mats made from woven strips of ivory are made in Delhi, Murshidabad and Bharatpur. But perhaps ivory objects most common today and certainly the most popular are figures of Hindu gods and goddesses and of the Buddha — some most beautifully carved, others rather crudely.

In a small pamphlet published by The Publications Division, Ministry of Information and Broadcasting, Government of India, we read :

"For sheer elegance and fine craftsmanship the ivories of Mysore and Travancore are highly prized. Murshidabad and Cuttack still keep up their old tradition of producing fine ivories. One of the striking ivory panels produced in South India has found a place in the National Museum at Florence.

"Carved images of mythological interest, nudes. scenes from contemporary life and articles like combs, caskets, cigarette boxes, necklaces, bangles, chessmen, toys, paper cutters and the like are produced in ivory. In East Punjab, Amritsar, Patiala, Ambala and Ludhiana produce delicate but durable ivory articles. In Bengal, Calcutta and Murshidabad are known for minute ornamentation. The ivories of Delhi have a popular tourist appeal."

Sir George Watt, who made a deep study of the ivory-carver's craft in connection with the Indian Art Exhibition held in Delhi in 1903, wrote of the extensive use made, apart from true ivory, of what is known here as *machili-ka-dant* or "fish-tooth." He describes this to be of a dirty, oily, yellow colour "with the texture looking as if crystallized into patches." On inquiry he found that this material was more highly prized than real ivory for use as sword and dagger hilts, especially after "curing", a long and complicated process. The crude "fish-tooth" was enveloped in a mixture called *masala* and left covered for a long time, for best results even as long as fifty years. The "fish-tooth" is said to be stronger and have a smoother and finer texture than true ivory, and has less tendency to slip in the hand.

The researches carried out by Sir George Watt convinced him that the *machili-ka-dant* is a kind of fossilised ivory of Siberia, possibly the ivory of the long-extinct mammoth, "a substance that has lain for countless ages in the frost-bound drifts of Liakoff and New Siberia." It is also possible that some at least of what passed in the past as ivory was "walrus ivory"

or "sea-horse ivory" imported into the country from abroad.

The true elephant-ivory may be that of the African or the Asiatic species. The African ivory is denser and harder and is less liable to turn yellow, that of the East Coast of Africa being even better than that from the West Coast.

Ivory that has been kept for a long time so that it has lost its oiliness and elasticity is called "dead ivory" and to restore these advantageous properties, the ivory-carvers wrap up the material in a damp cloth until the carving has been completed. But as against this, we are told that "while this saves the ivory from chipping off in the carver's hands, it causes it to warp and split soon after and to rapidly lose colour—defects that seriously retard the Indian Ivory-carving Art."

Today, though ivory-carving is still practised in many parts of the country, the chief centres famous for the quality of the work produced are Dehli, Murshidabad in Bengal, and Mysore and Tranvacore in the south. At Delhi, the art-craft seems to have developed under the patronage of Mughal rulers, and later of the Sikhs, for the Delhi work of the past bears a most unmistakable Mohammedan touch. However, the present style is more eclectic and mostly Hindu in feeling, consisting of rich flat arabesque tracery work and mythological panels, or animal figures, surrounded by lace-like perforations. In the past the Delhi work consisted of bangles, back-scratches, bed-posts, low Indian cots, etc., while under the Sikhs, the production of ivory combs to be worn in the long hair by men and women according to their religion, became popular. The objects produced today are more suited to the times — beautifully carved boxes and caskets, glove and jewel cases, paper cutters, card cases, chessmen and boards, and many types of table ornaments, mostly models of camels, horses, richly caparisoned elephants, country carts, etc.

Unfortunately, the figure carving in the round of today suggests a certain amount of stiffness and clumsiness of execution and is devoid of the technical freedom and flexibility of the really proficient carver's skill. Sir George Watt has an explanation for the peculiar distortion of form that is generally to be found : "The figure work is certainly much inferior to the rich tracery and complete perforation practised. It might be spoken of as perspective sculpture that is true to nature when viewed from one position only. All the same it is clever because it is an artistic adaptation to the necessity for economy and the difficulty to obtain blocks of the required size and thickness."

Recording the ivory-carving industry in the Punjab round about the closing years of the last century, T. P. Ellis wrote :

"European models so characteristic of other Indian arts has not as yet begun to influence the Delhi carving to any appreciable extent, and consequently there is an absence of deterioration into imitation.

"The characteristics of the work may be roughly divided thus : I. Figure or model carving ; II. Perforation ; III. Tracery, usually floral. These three characteristics are frequently combined in a single specimen, and it is only in the cheaper model specimens that ornamentation is not introduced. Of the three the former is the least satisfactory. There is in every figure a certain unnatural stiffness, a want of flexibility in appearance. Even in highly carved elephant figures, where the trappings, chains, decorated *howdahs,* etc., are exquisitely executed, the general effect is somewhat marred by the clumsiness of the central figure . . .

"Tracery designs, geometrical and floral, of the most intricate character are exquisitely worked, and the same design, (for instance, in the handle of a paper-knife) is reproduced time after time without the least discrepancy. Descriptions of such designs are impossible, but they all display a real artistic feeling amongst the workers." (*Journal of Indian Art and Industry,* Vol. IX, 1902.)

Ivory-carving and ivory-turning is carried out at many places in Rajasthan, the articles most commonly produced being bangles, boxes, chessmen, animal figures, combs, paper cutters, dagger hilts, etc.

Jodhpur is especially famous for ivory bangles, produced in different sizes so as to cover the whole arm from the wrist upwards right up to the shoulder. They are well made, brilliantly coloured, and sometimes additionally ornamented with glass beads, coloured lac, and gold leaf. The colours most generally employed for staining the ivory are green and red, with designs made up of black lines and circles, though occasionally also in pink or green.

At the Delhi Exhibition there were certain ivory "thumb guards" used when shooting with bow and arrows, from Udaipur. They were covered all over with pale green, deep brown, or dark claret red, and the design — mostly hunting and other scenes — scratched right down to the white of the ivory below the coloured coat. There were also floral scroll designs, the white flowers further richly embellished by gilding the margins of the leaves and the flower petals.

It has been suggested that the craft of ivory-carving reached Bengal — the Bengal of Pre-partition days — from Delhi. In the past, the Bengal ivory figures of Hindu deities were justly famous and they are still made today ; besides, at present, probably with an eye to the tourist trade, a large number of shelf ornaments, animal figures, models of bullock carts, etc., are turned out regularly.

"The flat and flimsy style of ivory work was first made in Murshidabad but it is now copied in Delhi and Patiala and finds a market all over India," writes Sir George Watt. "Without fear of contradiction it may be characterised, from the art point of view, as a modern abomination . . ." However, he has much praise for the ivory work of Cuttack and Puri in Orissa. That the art is ancient in this part of the country is certain from the many inscriptions to be found on the walls of the main hall of the Temple of Jagannath at

Puri. Here we find a record of presents made to the temple of ivory couches, bangles, *chauris,* etc., by private individuals and the ruling classes.

Sir George Watt has described a fine tortoise exhibited at the Indian Art Exhibition held in Delhi in 1903 which merits a full description in his own words :

"It consists of 4 pieces of ivory and is 8 inches long and 6 inches wide. The body of the animal is represented as wreathed and garlanded with flowers held in the mouth while entangled within these floral ornamentations are two charmingly carved and cleverly stained paraquets. The floral work is deeply cut, is liberally dispersed with large composite flowers that look like moon-stones or lotus-leaf discs and the deeply under-cut foliage recalls very forcibly the sandal-wood work of Mysore. The shell of the tortoise is removable and richly and deeply engraved."

A certain amount of ivory carving and turnery is also done in the West of India, especially at Surat, Bulsar, Ahmadabad, Poona, and certain regions of Kathiawar and Kutch. According to C. L. Burns who had made a study of the ivory work of this region, "It has none of the exquisite feeling and beauty of workmanship of the former, nor the complete craftsmanship, humour and insight of the latter." By former and latter, he is referring to the work produced during the middle ages in Europe and in Japan before 1860 respectively. However, the ivory work produced in the west is by no means negligible either in quality or quantity.

The south has always been famous for its work in ivory, that of Mysore and Travancore taking the pride of place. The South Indian work is definitely based on early Chalukyan traditions rather than on the Indo-Aryan school of decoration. Sir George Watt says, "There is something about the ivory work of the Southern Peninsula that at once brings to mind the complexity and intricacy of the pinnate and palmate floration (interspersed with grotesque animal forms) met with in the wall ornamentations of the temples of Baillur and Hullabid or even of the ancient Jaina temple of Mudbidri, rather than of the *swami* style of the Tamil country proper." It should be noted that the best quality of Indian ivory comes from Kerala, and especially Travancore.

Travancore ivory work has been described as massive, pure in design and excellent in finish. The designing is perfect, the curves graceful and "the feeling, that of a style of ornamentation that has borrowed nothing from foreign influence." The ivory statuettes of the place are perfect in form and are fully carved in the round so that they can be viewed with advantage from all sides. The designs in general are scrolls interspersed with animal forms, often grotesquely caricatured, or jungle scenes beautifully carved in full detail.

Jungle and sport scenes also abound in the ivory-carving in bas-relief produced at Mysore and Coorg, and sometimes the articles are further enriched with black lac after the fashion of Vizagapatam work, especially in the case of ivory inlaying in wood in which the Mysore craftsmen excel.

As mentioned before in passing, the speciality of Vizagapatam is veneered ivory work, the designs being mostly floral, the technique excellent, and the finish above reproach. The ivory may be further embellished with an engraved design in which coloured lac has been filled and the surface ultimately finely polished. The coloured design thus stands out on the pale off-white of the ivory. As far as the carving is concerned, it is generally in low relief and may be further engraved and coloured with lacs in different shades of blue and green. But though quite a considerable amount of ivory-carving and ivory-staining is done here, ivory is mostly used as appliqués or veneers on sandal-wood, tortoise-shell or horn articles. A characteristic casket from Vizagapatam has been described by Sir George Watt and this gives a good idea of the traditional style:

"It will be observed that the delicate trellis of ivory thrown over the tortoise-shell is richly carved as well as perforated, the designs being in graceful geometric scrolls, with medallions of mythological and animal subjects thrown within the floration."

The carving of miniature idols in ivory is common in some parts of the south like Tirupatti. Even if they do not represent great art, they do exhibit a very highly developed technical skill. As has been said, "it is not uncommon to find an idol of Krishna playing on his flute, either cut from a grain of rice or a seed of the tamarind or a fragment of ivory so minute that the aid of magnifying glass is required to discover the good or the bad points of the work."

Skill the Indian ivory-carver certainly has. Listen to the description of an ivory model exhibited at the Delhi Exhibition : "An elephant loaded with guns, camp equipage, etc., each article including the chains cut from solid ivory. This is a marvellous piece of work, more wonderful than artistic, but it shows the great skill that has been attained when the links of a chain, each not more than the size of a pin's head, can be cut from solid ivory so that they are distinct and within each other."

The tools used by the Indian ivory-carver are crude compared by Western standards, yet it is surprising what beautiful work he can turn out in spite of this. The tools commonly used in the Punjab include the *ari* or saw for all kinds of cutting ; *kanchi* for cutting thin sheets of ivory ; the *churri* or knife used for paring and rough shaping ; the *sohan* or file for shaping and finishing ; *birkas* or chisels of different sizes ; gouges, drills, punches ; the *randa* or plane ; the *patal,* a fine file used for smoothening the teeth of a comb after they have been cut ; the *rethi* or curved rifflers. Many other tools are used by the ivory-turner, but it would serve no useful purpose to specify them here.

Ivory can be, and is, dyed in various colours. A scarlet hue is produced with lac dye ; a crimson by dipping the ivory in nitro-muriate of tin and then in a dye from cochineal or Brazil-wood or a mixture of the two. Logwood is used to produce a black, the ivory

after dipping in the logwood solution being steeped in acetate of iron. The dye solutions are generally used hot and so as soon as the ivory has been removed from the hot solution it is plunged in cold water to prevent splitting. The surface is now polished, but not till the dye has fully penetrated and set.

Closed-grained ivory is not only hard but brittle ; and so although it is suitable for turning, its characteristics make carving difficult. It is always found necessary to make it softer temporarily, taking care that its characteristics are not altered permanently. To soften the material, the ivory is wrapped in wet cloths in which it is kept for several days, the cloths being frequently wetted as their moisture evaporates. After some time, the ivory is in a fit state for carving and will cut with the consistency of wax. Apparently the Indian worker in ivory is ignorant of the softening effect of vinegar on ivory, or perhaps he does not care to use the method as there is the danger of softening the material too much and altering its properties for good.

The deepest parts of the background of the design to be carved as well as all parts to be fretted are first drilled to the required depth with small drills to lessen the actual work of carving. The fretted areas, after drilling, are cut out with a fine fret-saw.

"As in all Indian work, there are certainly well defined stock models, which are reproduced time after time, possibly with slight variations in ornamentation as they suggest themselves to the fertile ingenuity of the carver," wrote T. P. Ellis, sometime in the opening years of the present century. But perhaps the same is as true today as over half a century ago. But, Mr. Ellis points out :

"It would be a mistake, however, to imagine by this that they are incapable of working out of the beaten tracks, for not only are the best carvers possessed of considerable artistic feeling and imagination, and capable of reproducing their ideas in ivory, but they are extremely adept in carving any figure or design which may be specially ordered, even from so unsatisfactory a model as a photograph. Some of the best work produced is that done under these conditions."

The use of ivory for architectural decorative purposes is best exemplified by the wooden doors of the old palace at Bikaner, covered with a raised network of appliquéd ivory ; doors veneered with ivory are still to be seen in the palace at Amber, and in the Bari Mahal (Amar Vilas) at Udaipur, the "City of Sunrise."

The Punjab has always been famous for its ivory inlay, the best examples of its architectural use being the beautifully inlaid doors of the main entrance to the Golden Temple at Amritsar, reference to which has been made before.

TORTOISE-SHELL, BONE AND HORN CARVING

Actually, tortoise-shell is not commonly used for carving but as a veneer on boxes and other articles made at Vizagapatam. However, a limited number of articles like combs, paper cutters, buttons, etc., are made of tortoise-shell, but there is no regular trade in them. The same is also true of Gujarat.

Bone is little used and that only as a substitute for ivory in cheap inlay work ; though in Peshawar in Pakistan, *surma-danis,* which are boxes for keeping the black antimony eye application, used to be made of camel bone, and this material was also used for decorative purposes in certain types of lac-wares of the district.

Buffalo horn is used chiefly as a veneer although nowadays, statuettes are also made as well as combs, boxes, cups, *hukka* mouth-pieces, pen holders, walking stick handles, umbrella handles, snuff-boxes, dagger and knife handles, etc. Ornaments like necklaces, brooches and bangles are made in some of the Gujarat and Bengal districts. Special mention may be made of the horn spoons from Baroda, the combs of Rajkot, the veneered work of Kotah, and the Surat and Ahmadabad boxes veneered with horn, which though of little artistic merit can be quite pleasing to look at, and the life-like animal figures of Madurai. From Mysore come umbrella and walking-stick handles, buttons, boxes, etc., made of buffalo horn and generally richly inlaid with ivory and copper.

In some places like Savantwadi and certain regions of Ratnagiri, bison horn is considerably used. E. H. Aitken has described the process of manufacture in these places :

"A portion of horn is kept moist with coocanut-oil and heated before a fire until it becomes almost as soft as wax. This may take an hour or more. It is then worked, or pressed, into the required form, either with the hands or by means of moulds made of hard wood, and finished off with scraping tools and a small lathe. It remains to polish the whole and ornament parts of it with simple but graceful designs. The ornamentation is done in line with a fine, double-pointed steel graving tool. The tools used in this work are indeed all extremely simple, and there are not many of them. A small, rude lathe, a fine saw, a few triangular blades without handles, for scraping and polishing, a pair of compasses or callipers, three or four graving tools of different sizes, with perhaps a file or rasp, and moulds made for the occasion, complete the necessary equipment.

"It does not appear that the men work from any models or designs. Most of the figures are traditional. Perhaps the commonest articles made is a *nandi,* or sacred bull, supporting a flat tray about seven inches in diameter, with a cobra rising out of the middle of it and rearing over it with expanded hood. The bull is in one piece, made from the solid half of the horn, which is always black. A hole is drilled in the back of the bull, in which is fixed the pedestal of the tray. This is another piece, and consists of a simple stem of solid horn, turned on the lathe. The tray is made from the base of the horn and is almost transparent. This is always made in the mould, after the horn has been thoroughly softened, and a good deal of labour is

expended on it, the edges being scolloped and the border elaborately ornamented . . . The cobra is also made from the translucent section of the horn and must be moulded into shape with the hands. It is fixed so that the head rears over the middle of the tray, while the tail, passing through a hole in the bottom, twines round the stem. The eyes and the mouth of the cobra and the scales on its back are most minutely worked out. It will be observed that this is all line engraving. There is scarcely anything that can be called carving in the whole work. Moulding and scratching are the only processes to which the material lends itself." (*Agricultural Ledger*, No. 10, 1897.)

Mr. Aitken further reports that at the time of writing the other articles commonly made were ornamental cups, buttons, beautifully translucent round boxes, caskets, lamp-stands, etc.

Antlers of the black buck were also sometimes used for making dagger and knife handles or pen-holders, often mounted in silver.

Very highly-priced articles are also sometimes made out of the horns of rhinoceros, the high cost being due to the scarcity of the raw material. Recently, ivory and metal, especially copper, inlay work in horn has become quite popular, and many articles of common contemporary use like powder and other boxes, umbrella handles, etc., are produced ; such inlay work is also done on the handles of the Gurkha *kukri* and such other weapons, the designs used often being traditional. In Nepal, the home of the *kukri,* devotional cups are sometimes made of rhinoceros horn, while in Bhutan, another Himalayan State, long and thick horns are turned into rich ornamental vessels for carrying and storing milk.

INDIAN INLAY CRAFTS

Inlaid work can be very pleasing to the eye and can afford a good deal of aesthetic pleasure if carried out with dignity and restraint. Inlaying of wood, ivory, bone, metal, and the use of wires, etc., in woods of a contrasting colour is common in this country. For example, Mysore is famous for its inlaid work of ivory in ebony or rosewood, while the *tarkashi* work of Mainpuri is a fascinating form of inlay craft in which bits of wire are set into the wood surface to form geometrical or floral designs of a regular and symmetrical nature. Travancore excels in inlaid work in metal.

It has been contended that inlay work is a very ancient craft in India and in proof it is pointed out that shell was commonly used as an inlay at Mohenjo-Daro and Harappa. But such ancient lineage is in considerable doubt. However, it cannot be denied that "the use of marble inlay and mosaic work was very popular under the Mughals and led to excellence in the costly art of pietra dura, in which precious stones were inlaid in marble in the most astonishingly delicate flower patterns."

According to another school of thought, the craft reached Sind from Shiraz in Persia about 150 years ago, having been introduced into the country by three Multani brothers, Purshottam Hiralal, Devidas, and Valiram. From Sind it travelled to Bombay and Surat under the guidance of such craftsmen as Lalchand, Manordas, Nandlal, Rattanji, and others.

Inlay work achieved great popularity in the Bombay area and came to be known as "Bombay Inlaid Work," blotting cases, boxes, desks, card cases, glove boxes, etc., generally being produced, the inlay being of tin wire, ebony, sandal-wood, Brazil-wood, horn, glass, ivory either white or stained green. Triangular, round, rhombic or obliquely four-sided strips of the inlay material is tied together into a bundle and then cut across in thin sections, the pieces forming the individual motifs of the inlaid decoration. The patterns commonly found in Bombay Inlaid Work are according to Sir George Birdwood :

Tinkonia-gul — three-cornered bloom.
Chakar-gul — round bloom.
Chorus-gul — square bloom.
Katki-gul — hexagonal bloom.
Adhi-dhar-gul — rhombus bloom.
Tiki — a small round dot pattern.
Ek dana —"one grain," like a row of silver-beads.

In Bombay and at Surat, Baroda, Ahmadabad, Kutch, tin wire was used as inlay, unlike the wire of brass commonly made use of in Shiraz itself. Bombay Inlaid Work is rather similar to the marquetry or tarsia of Italy and Portugal and therefore it is not surprising that fine old caskets, coffers, etc., have been found in Goa, very much like the sixteenth and seventeenth century tarsia work of Portugal.

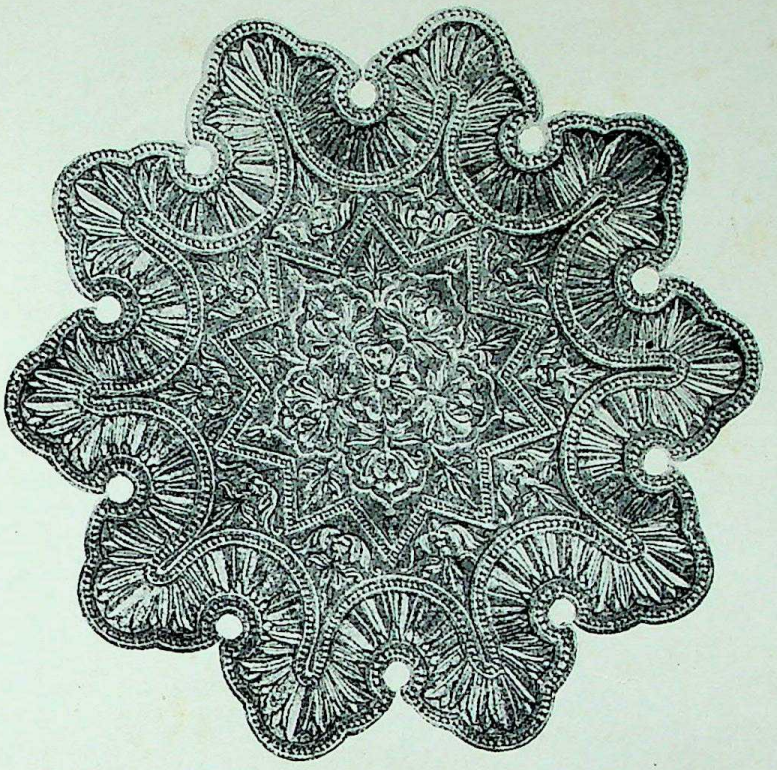
A hint about the technique of the work is given by E. S. P. Lely in the *Bombay Gazetteer* of 1879 : "The simpler designs were formed by filing pieces of mother-of-pearl to the required size, and letting them into the pattern cut into the block of wood. The more elaborate designs were, with fragments of different coloured mother-of-pearl, worked into cement, and laid on the surface to be ornamented. Of the coarser and commoner kinds of inlaying a little is still used for the frames of *tamburas, rubabs,* and other guitars and violins."

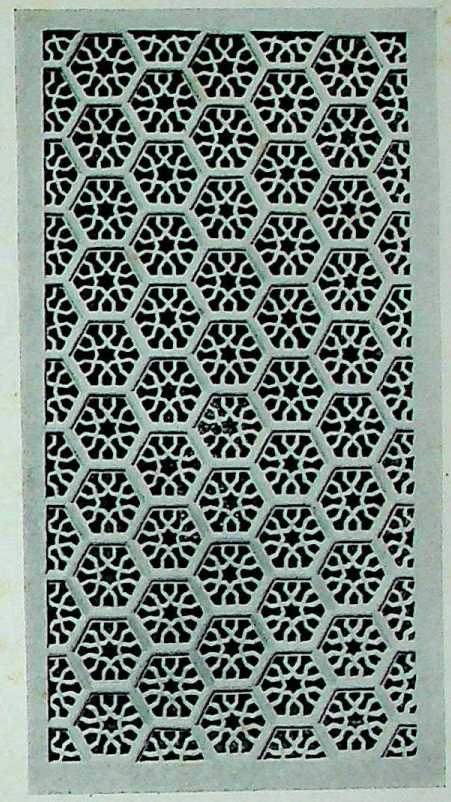
It is surprising that the craft of inlaying is not at all popular in Bengal, Monghyr being the only place where ivory and horn are occasionally used as inlays on furniture or small articles made of ebony. In contradiction to this are the cabinet makers of Nagina near Bijnore who specialise in inlaying silver and mother-of-pearl in the dark tone of ebony of which their articles are made. The Punjab is also celebrated for its ivory and brass inlay in wood, while ivory inlaying is extensively practised in Hoshiarpur where small stools, cupboards, cabinets, boxes, and other household goods and useful articles are made of *shisham* or blackwood (*Dalbergia latifolia*) expertly inlaid with ivory. A small dark edging is often added to set off the pale beauty of the ivory design. About this work, Mr. Kipling has written :

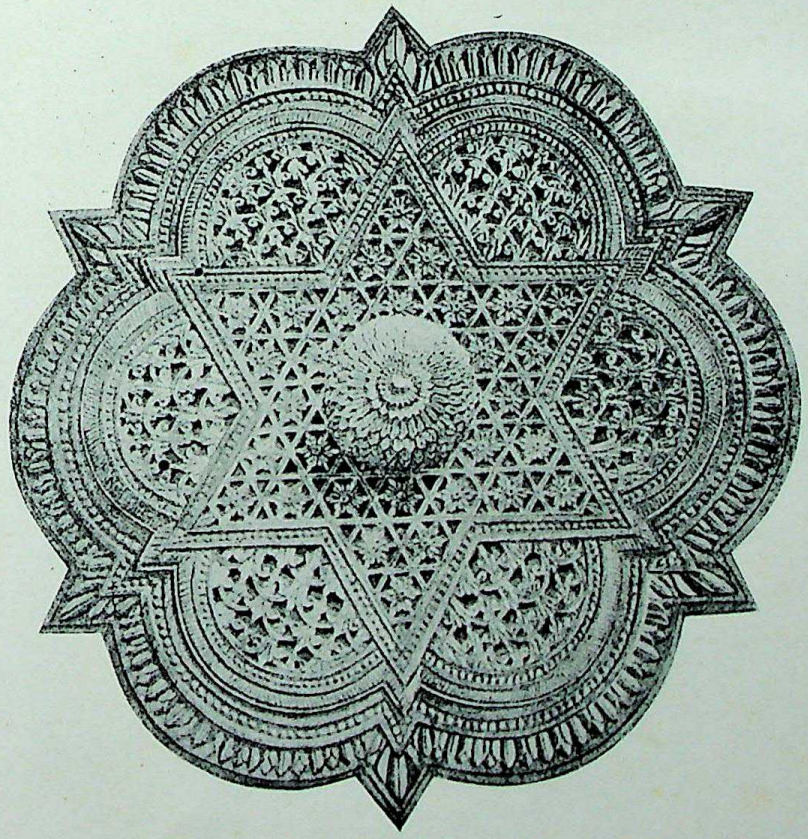
"For many years pen-cases, walking staves, mirror-cases and the low *chauki* or octagonal table common in the Punjab and probably of Arab introduction have been made here in *shisham* wood inlaid with ivory and brass. The patterns were very minute and covered nearly the whole of the surface with an equal spottiness . . . The ivory used is generally the waste stuff left by the turners of ivory bangles and by comb-makers."

Brass inlay is common at Hoshiarpur and Jullundar. The metal is cut into fine thin plates and then inserted in the wood with great precision to form the design. Often woods of different colours are used for inlaying and in that respect resembles the marquetry work of Europe. To quote Mr. Kipling again : "Wood inlay is understood to a limited extent by nearly all the more skilful *mistris* or carpenters of the Panjab. They employ box and other white woods upon *shisham,* or the latter upon the yellow deodar."

Work resembling that of Hoshiarpur is also found in certain parts of Rajasthan where also the wood used is *shisham,* inlaid with ivory or mother-of-pearl. In the south, the art of inlaying in wood is that known as Vizagapatam work from the site of its origin. Inkstands, card-cases, work boxes, chess-boards, and such





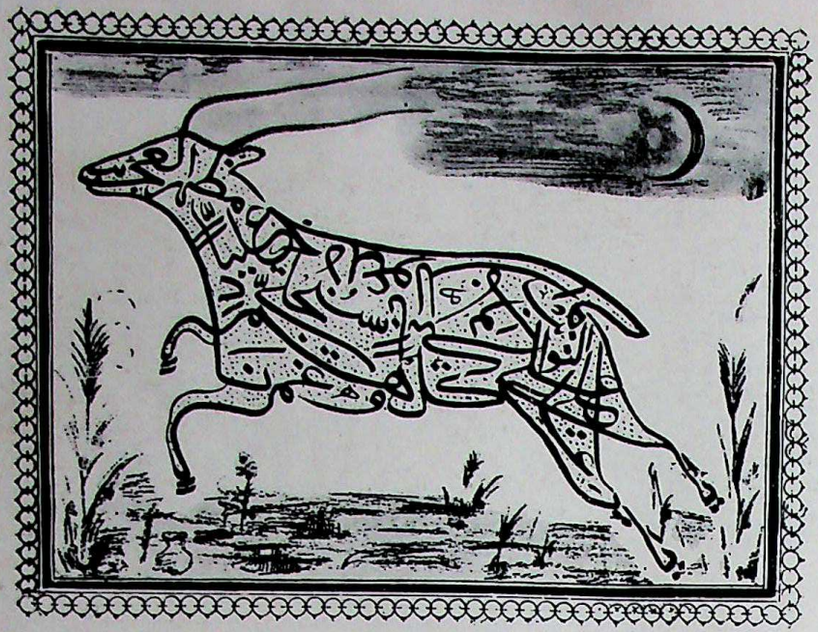


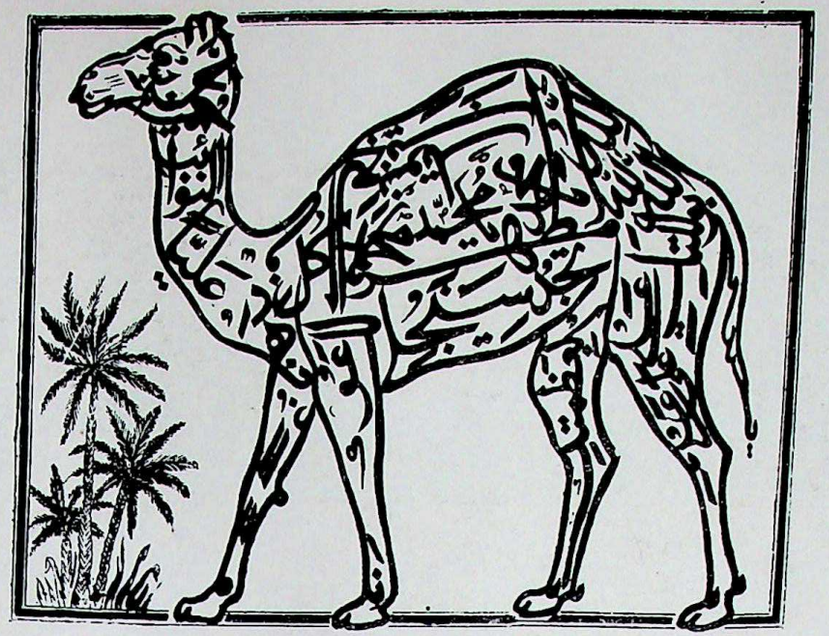
Carved and fretted soapstone articles from Agra. The designs are sharp and clean-cut.

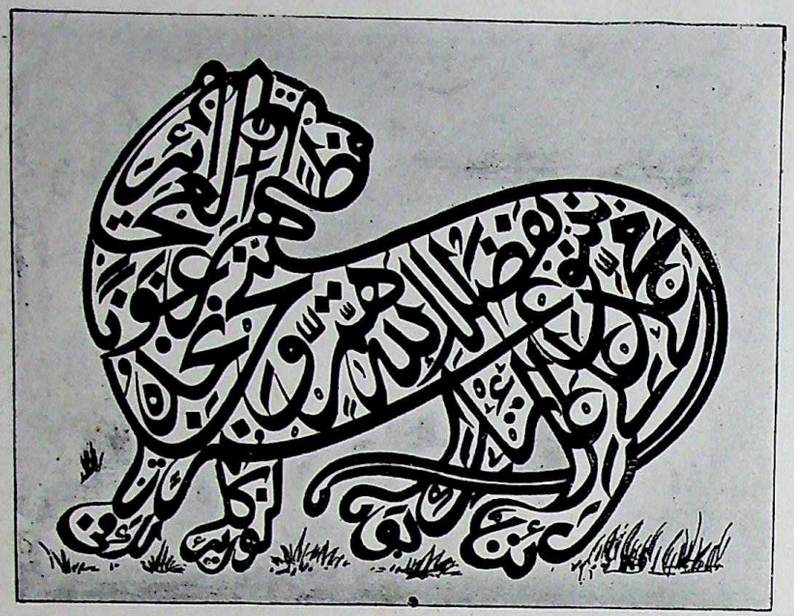
(From *The Journal of Indian Art and Industry*)

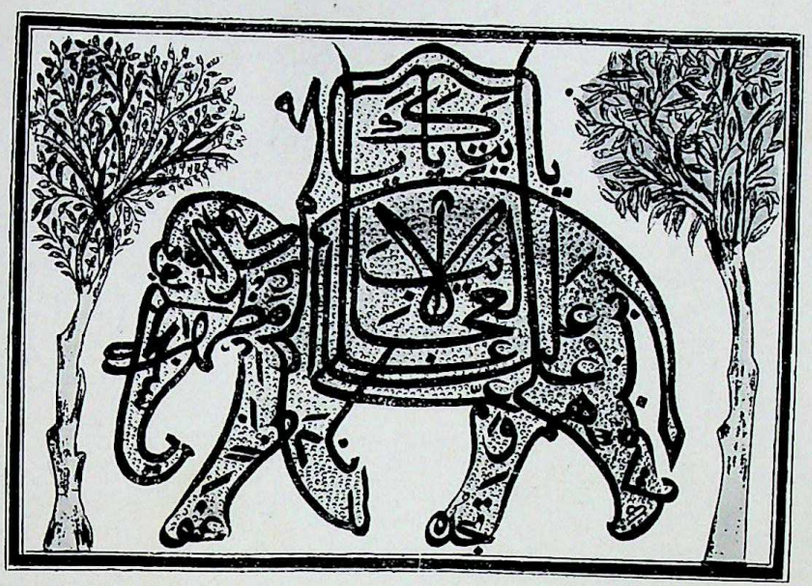
Top : Stone jali work from the tomb of Itmad-ud-Daulah, Agra.
Bottom : Floral jali work in stone from Ahmadabad.

(*Photos : A. S. Vaswani*)



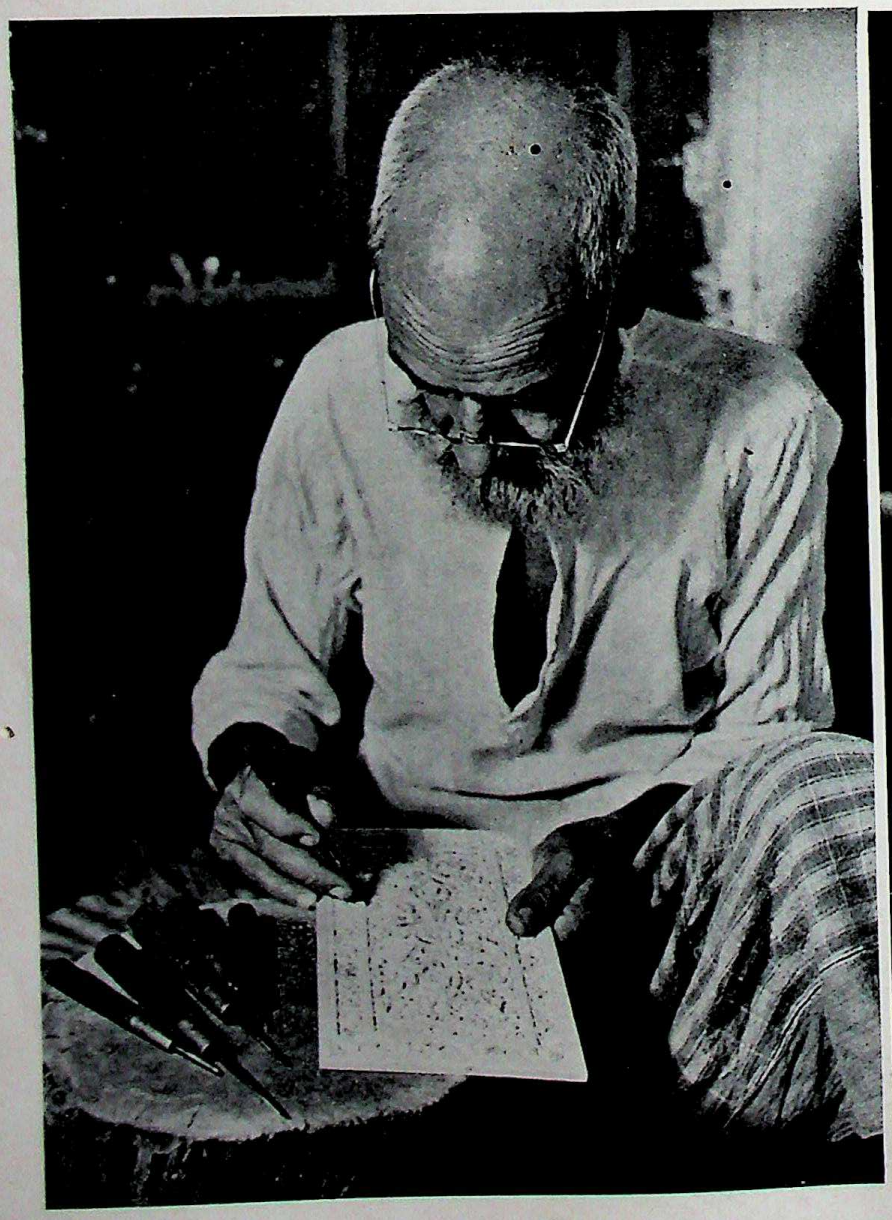




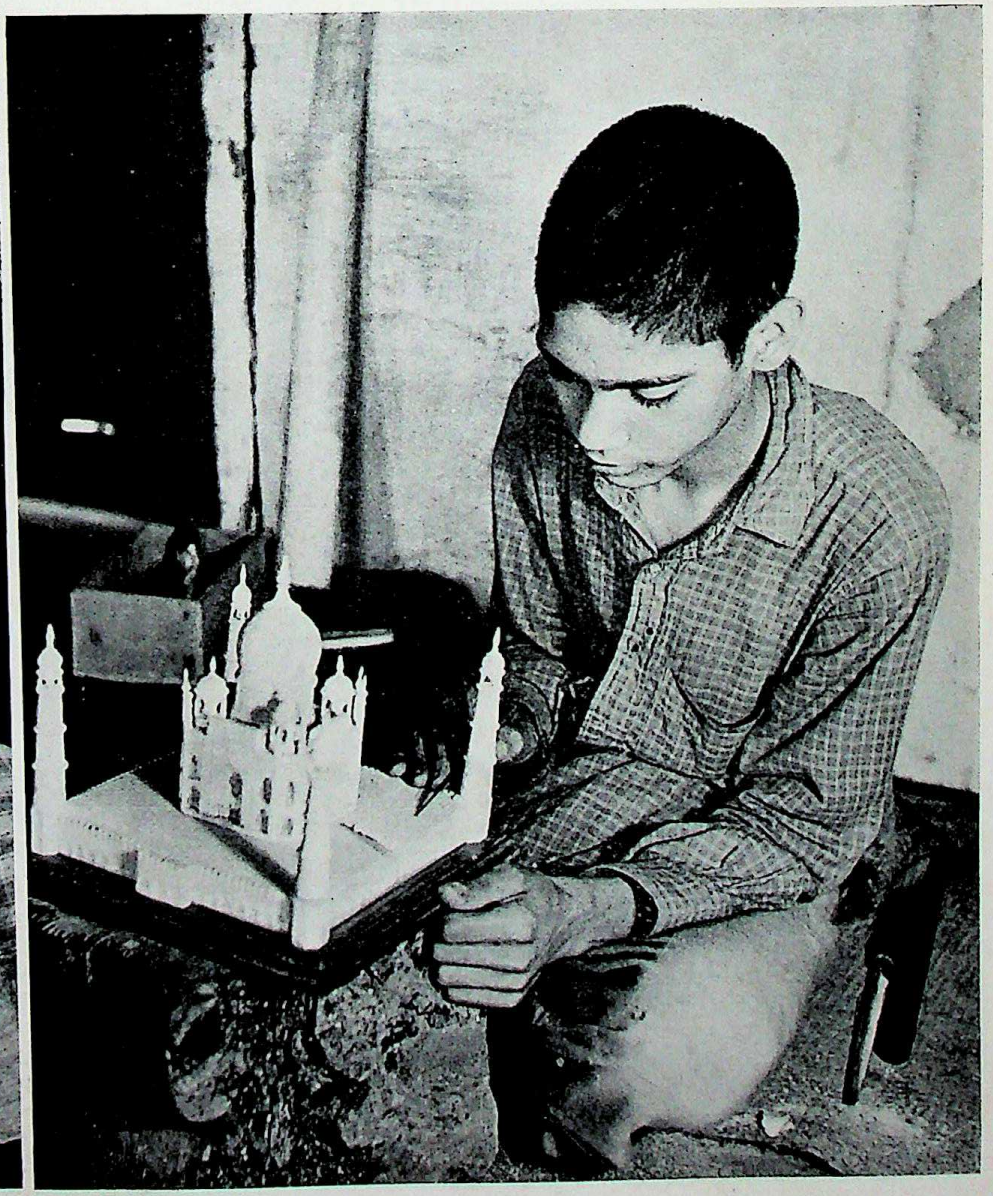


Tugra calligraphy in Arabic script — ornamental writing formed of letters made up in the form of animals, birds or flowers. The tugras here illustrated are formed of the letters composing the famous holy text of Nad-i-Ali, meaning : "Address Ali, who is the source of all manifestations of wonder. You will find him a helper for yourself in distress. Anxieties and sorrows will vanish in the immediate future. Oh Mohammed ! by reason of your being a Nabi (Prophet) and Oh Ali ! by reason of your Valayet (proximity to God)." These illuminated tugras are often used as wall ornaments.

(From *The Journal of Indian Art and Industry*)



An old ivory carver of Delhi at work on an ivory plaque. This delicate craft is still pursued by several craftsmen in Delhi.

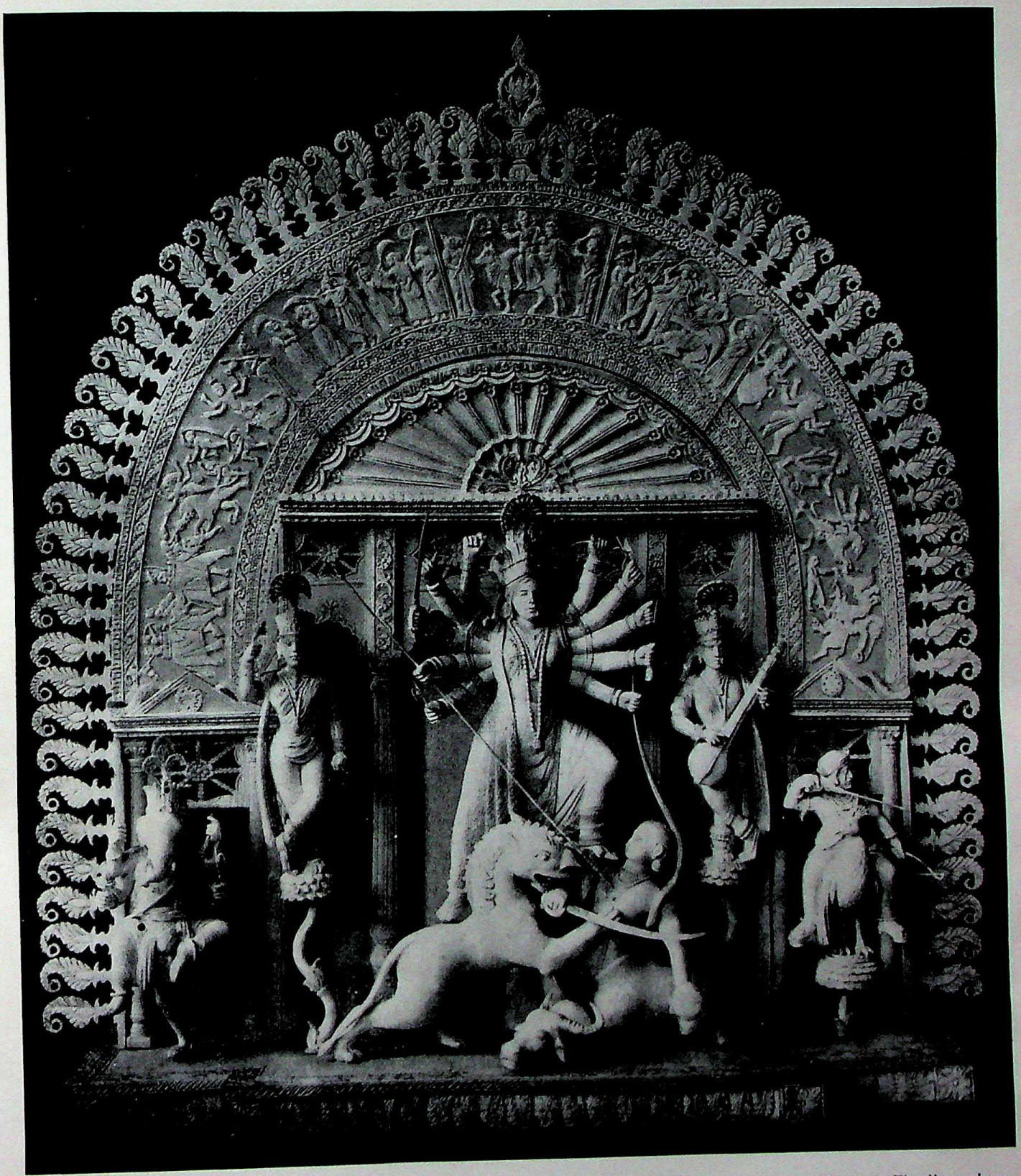


A young carver putting the finishing touches to an ivory model of the famous Taj.

(*Photos : R. Lakshmi*)

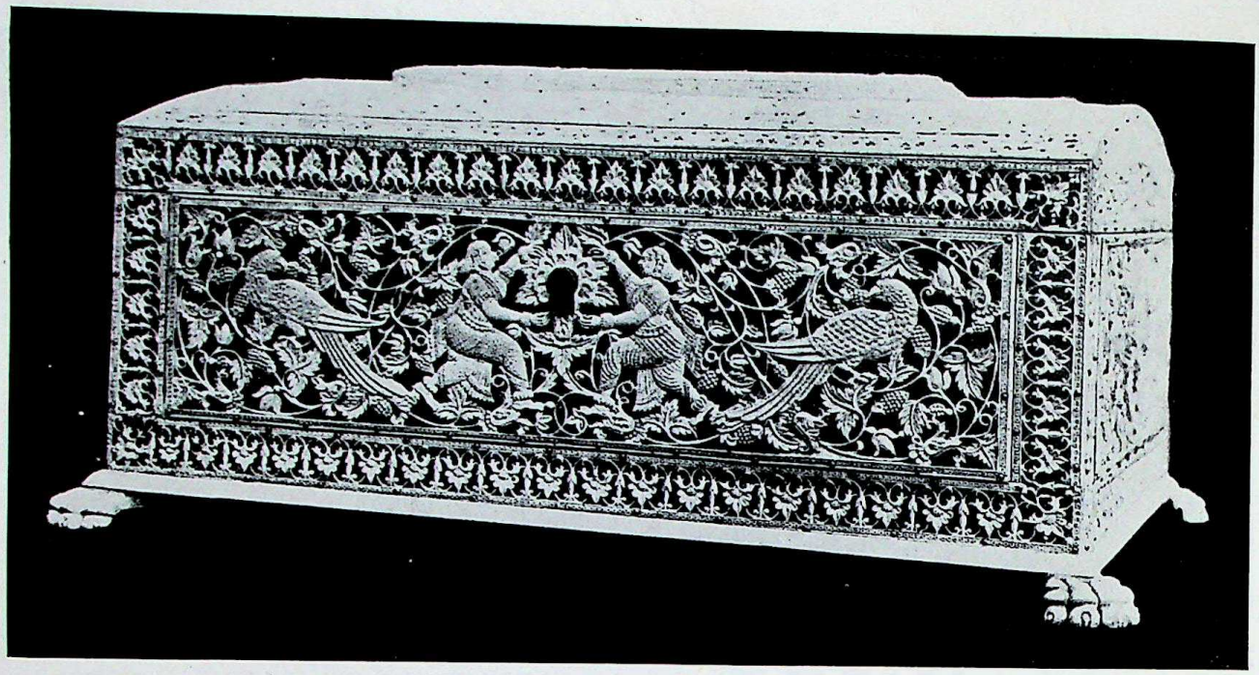
Three-fold ivory carved and fretted screen donated to the State Hermitage, U.S.S.R., in 1955 by Pandit Jawaharlal Nehru, Prime Minister of India. Delhi work of 19th Century.

(By Courtesy of the State Hermitage, U.S.S.R.)



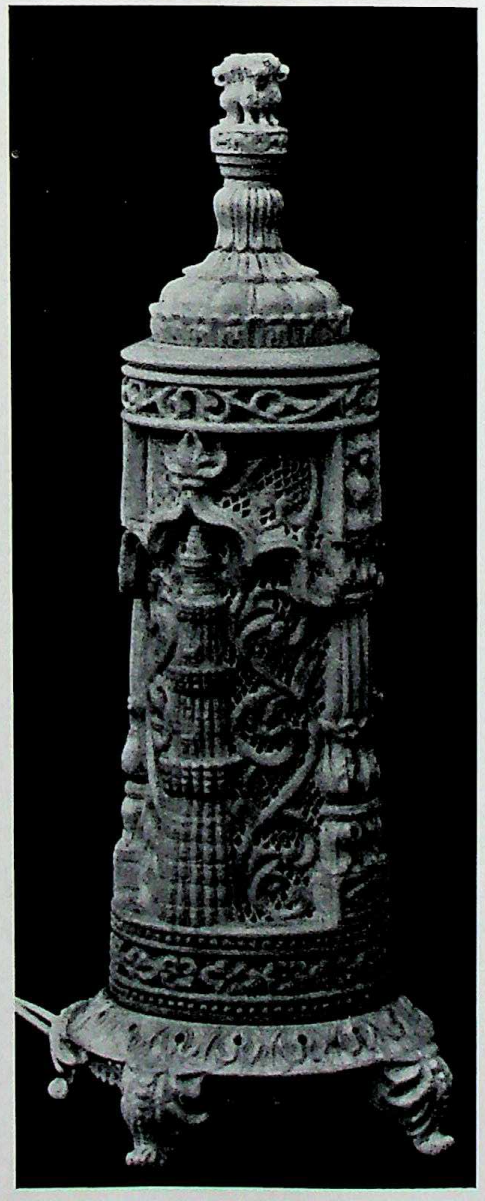
Carved ivory panel representing Durga (a form of Parvati) triumphing over Mahishasura, king of the Asuras (demons). The lion vahana of the goddess has seized the demon king's right hand while a cobra has encircled his body. But his final defeat was accomplished by the potent weapons of Durga's personal charms. Made at Burhanpur in 1851. This panel is a fine example of technical skill, though not purely Indian in conception or style. India Museum, South Kensington.

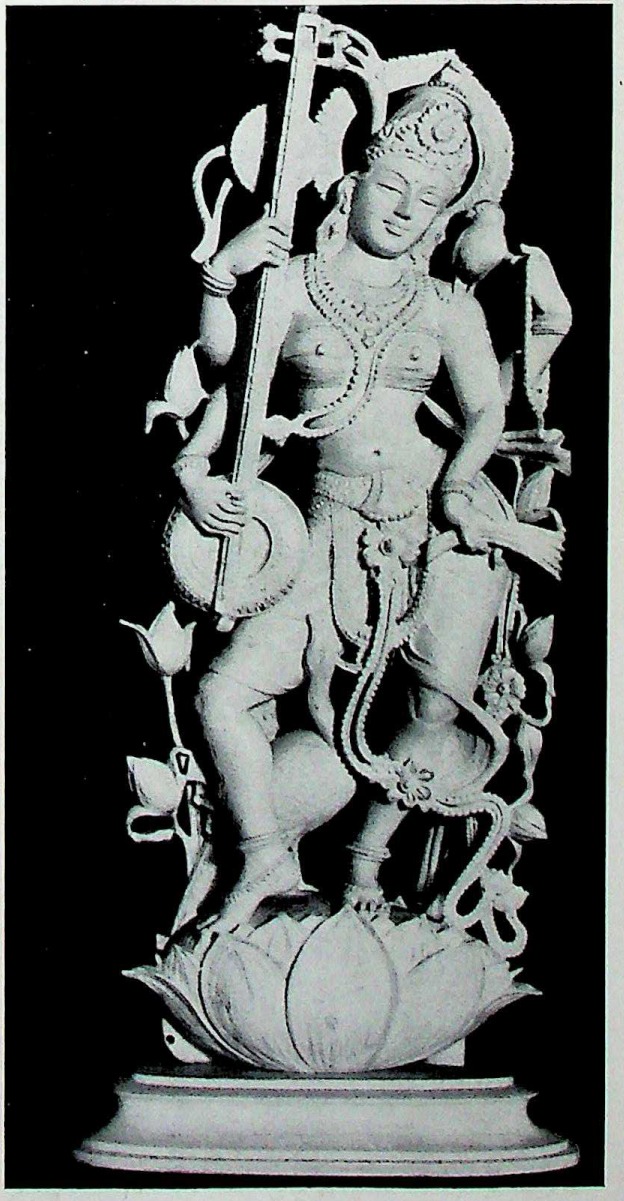
(From *The Journal of Indian Art and Industry*)



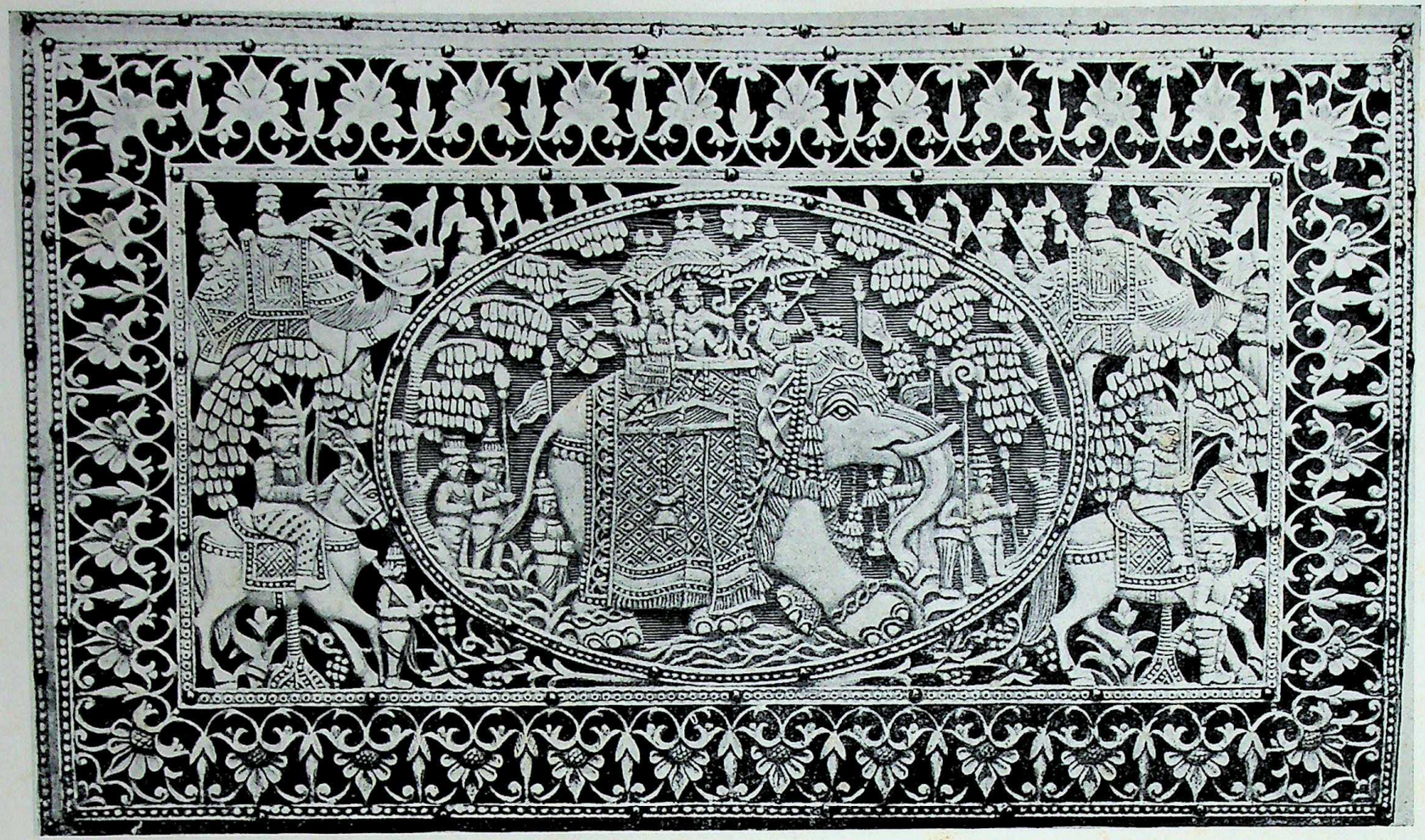
A beautiful carved ivory jewel casket from Vizagapatam. The ivory panels are fixed onto a tortoise-shell box. The carving is remarkably delicate.

Carved ivory box from Bhuj in the Bombay State.
(From *The Journal of Indian Art and Industry*)





The two figures and the lamp are fine examples of modern ivory carving in the round.
(*Photos : A. S. Vaswani*)



Lid of a beautifully made tortoise-shell box with carved ivory decorative overlay, from Vizagapatam.
(From *The Journal of Indian Art and Industry*).

other small items made of sandal-wood and decorated with inlays of ivory fret-work, horn, tortoise-shell, etc., are currently produced. According to Dr. Bidie, "The surface of the ivory is generally adorned with etchings in black of mythological figures very well executed, or with floral forms in light and shade, which are copies of European designs. The workmanship of the articles is usually superior, and although expensive, they are much in demand as drawing-room ornaments."

Mysore also excels in the production of furniture in ebony inlaid with ivory, the finest known examples being the ivory-inlaid doors of the mausoleum of Tippu Sultan. What gives this work its great charm is the ornamenting of the ivory inlay with black etched designs. The pattern is first scratched into the surface of the ivory and then black lac rubbed over it to fill the lines. The application of gentle heat with a heated rod fuses the lac when any excess showing on the surface is scraped off with the edge of a blunt knife. This phase of decoration is carried out before inlaying the ivory in the case of large pieces, but with small articles, it may be done even after the ivory has been inlaid. The designs adopted at Mysore are really artistic and the craftsmanship excellent, perhaps superior to that of the inaly-workers of Hoshiarpur and Jullundar. The Mysore work has a simple chaste dignity, the surface of the article being decorated never overloaded with ornamentation.

A peculiarity of some of the Mysore ivory inlaying in wood lies in the fact that the hollows cut in the *shisham* to receive the ivory pieces are not made to the exact size and shape of the inlay pieces, but slightly larger openings are made, the ivory inlays placed inside and the surrounding excess space filled with melted lac coloured to match the wood being inlaid.

Some fine examples of ivory inlay and appliqué work still exist in the old palace at Tanjore and beautiful ivory-inlaid musical instruments like the *vina* and the *tambura* are still made at this place.

Occasionally jade is also used for inlaying. J. B. Waring, dealing with certain exhibits at the International Exhibition of 1862, says : "Jade, which, from its traditional supposed efficacy in nephritic disorders, has obtained the name of 'nephrite', is one of those hard stones in working which the Indian displays to advantage his patient industry. He works with the simplest materials — a small chisel, mallet, corundum-stone and powder. Jewelled bangles and other ornaments are also made of this material, the finest, of a bright green, being obtained at Rangoon, in Burmah. The pen-box, inlaid with red and green sprig ornament, resembles greatly, in the style of its decoration, the fine mosaic-work made at Agra and Delhi . . ."

One of the finest of the inlay crafts is the *tarkashi* or "wire work" of Mainpuri, which rather looks like the Italian Buhl-work, and consists of rich dark wood, generally *shisham,* beautifully and skilfully inlaid with brass wire in a multitude of geometrical, scroll, or floral patterns. But there is really a great difference. Buhl-work, named after its originator the Italian cabinet-maker Charles André Buhl (A.D. 1642-1732), consists in inlaying metals (generally silver and brass) with tortoise-shell or enamel or with metals of different colours. While Buhl-inlay produces a rich but over-ornate effect, good *tarkashi* work has a quiet dignity that is difficult to describe.

The articles are generally made of *shisham* on which the minute designs are formed by hammering in very thin brass wire, after which the surface is carefully polished, the article thus decorated presenting to the eye "an intricate maze of golden patterns running into all directions in endless profusion, though with the usual regularity and symmetry of an Indian handiwork."

The mode of inlaying the wire in Mainpuri has been clearly described by A. H. Pirie, who was the Honorary Secretary of the Provincial Museum at Lucknow : "This is a work peculiar to Mainpuri itself . . . Hard wood, generally *shisham,* is used. It must be well seasoned. The brass wire is let into the wood in the following way. A diagram is first drawn in pencil on the wood ; then with a sharp knife incisions are made along the pencil marks and the wire put into the incisions and then beaten down to a level with the surface with an iron hammer. The process requires considerable time and labour. Thus a plate of 12 inches in diameter takes one workman 20 days."

The many dots and points in the design are produced by inserting in small punched holes in the wood, tiny coils of wire twisted round the point of a needle.

As the inlaying of different materials in woods of varying species is a craft practised in many parts of the country, it may be advisable to summarise briefly according to the material used for the inlay.

Ivory and Bone : As mentioned before, both at Hoshiarpur and Jullundar in the Punjab, this type of inlaying is common ; and though in former times the chief trade was in the typical Indian low settees and tables, now walking sticks, pen-boxes, tables, cabinets, cases, boxes, trays, etc., are commonly made. The articles are spotted all over with the bone or ivory inlay pieces, but the designs though elaborate are artistically inferior.

Nagina, a few miles from Bijnore, also produces articles of use, mostly in ebony inlaid with ivory, but the designs are overloaded with tiny specks of white. Monghyr in Bengal is also known for this type of work. Formerly, the chief design was a tiny spray of conventionalised flowers. Lately, a departure from the traditional motifs is discernible, which can be best explained in the words of Sir George Watt : "Three circular pieces of ivory, one larger than the other two, are inlaid at fixed intervals, while the interspaces of ebony are incised and punched, thus giving an effective background to the diaper of ivory."

The inlay-work of Mysore has already been dealt with fully and no further particulars need be given here.

Metal Inlay : The technique of the *tarkashi* work of Mainpuri has been discussed fully above. The

designs are more or less geometrical as best suiting the technique, evolving into "an endless profusion of winding and encircling golden lines." The dots or spots in the design may run into thousands in the space of a few square inches.

Chiniot is another place well-known for brass inlaying, much of the work turned out being really beautiful. The designs are bold and have a freedom of execution which is absent from the more or less similar work of the Punjab. In Chiniot, as in the Punjab, the inlay is not confined to wire as in Mainpuri, but often includes thin plates of metal cut to the required shapes. Often, however, this is not true inlaying. The brass is not actually "inlaid" but "laid on" and fixed in place by minute nails. The designs are of a Mohammedan type and inferior in originality and variety compared to the intricate floral patterns of Hindu inlayers.

Excellent work with metal-inlay is also produced at Travancore, the metal used generally being copper and not brass. The designs are unusual and unlike those found anywhere else.

Both at Aurangabad and in the Ratnagiri district, the use of coloured woods is popular, generally in two or three shades, often interspersed with brass.

Considering the fairly widespread coverage of inlay work in India, it is rather surprising to read in a small booklet published by the Government of India that "there is no special craft devoted to inlaying, but there are a few centres that have for long years been famous for expert inlayers — Jullundur for ivory, bone and brass-inlaying on *shisham* (blackwood), Mainpuri for copper or brass wire ; Mysore for ivory on *shisham,* rosewood or ebony, and Monghyr for ivory on ebony. The Mysore work is distinctly superior in artistic design and workmanship."

INLAY WORK IN ARCHITECTURE

It has been said that the art of inlaying of coloured semi-precious stones in marble was introduced into India by Akbar, but reached its zenith under the beauty-intoxicated Shah Jahan, the dreamer of the Taj, which perhaps contains the finest examples of this beautiful art. Marble, crystal and jade have always been highly prized in India, and stones like the agate, carnelian, jasper, lapis lazuli, cut into thin slices, have been inlaid into architectural marvels in marble with faultless taste and superb skill to produce masterpieces of loveliness that can never be described in words.

The mosaic work of Agra with its inlay of crystal, pearls, topaz, turquoise, jade, coral, carnelian, amethyst, carbuncle, blood-stone, sapphire, lapis lazuli, agates, garnets, and chalcedony, in pure white marble, led to a similar form of decoration applied to ornamental furniture and smaller *objects d'art.* The craft was in a dying state by the end of the Mughal Empire round about A.D. 1800, but revived later to a certain extent due to the personal exertions of Dr. J. Murray who was the Inspector-General of Hospitals in Bengal.

Work similar, but very much inferior, to that in the Taj Mahal at Agra is also to be found at Lahore, a statement made by J. L. Kipling in his *Lahore Guide* : "There is a small though costly marble pavilion, inlaid with flowers wrought in precious stones, . . . This delicate and beautiful work belongs to the time of Aurangzeb . . . The inlay, much of which has unfortunately been destroyed, is remarkable for excessive minuteness and finish of execution." Lahore is now in Pakistan and the author has been unable to find out in what state of preservation this pavilion is at present.

Returning to Agra, although the palace of Akbar is made of red sandstone, almost all room interiors, pavilions and corridors are of polished white marble with beautiful mosaics and exquisite carvings. The pavilions are inlaid within and without in rich designs of agate, carnelian, jasper, bloodstone, and lapis lazuli. It has been pointed out that the art of encrusting coloured semi-precious stones in marble or sandstone was introduced into the country by Akbar to take the place of coloured tile mosaics. One of the finest examples of stone inlaying is to be seen in the tomb of Itmad-ud-Daula at Agra, probably completed by A.D. 1628, and so the earliest of its particular kind.

Perhaps the most unusual is the Shish Mahal or "Palace of Mirrors," the rooms and corridors of which are decorated with a mosaic of mirrors, in geometrical arrangements, and was probably the work of Shah Jahan. The walls and ceilings have been further decorated with powdered talc which together with the innumerable small mirrors makes the Shish Mahal certainly unique. In Lahore also there is an inferior Shish Mahal, constructed probably under the orders of Shah Jahan and later those of Aurangzeb. The mode of construction, at least of the Lahore structure, seems to be something like this : small pieces of wood must have been cut out in the required shapes and inlaid with small bits of mirror-glass, painted and gilded, and then joined together to form the pattern.

Glass-mosaic work is also popular in Udaipur, the glass being embedded by means of plaster of paris or cement. The method followed is simple. The design is first drawn on paper and the glass is then cut into the required shapes and stuck on the respective areas of the design, following the prescribed colour scheme. When the whole design has thus been covered with the cut pieces of glass, the paper is inverted over a prepared bed of almost dry *chunam* or lime. The glass pieces are pressed into this bed and left to dry and set. The paper is finally washed away, leaving the glass mosaic embedded in a smooth marble-like *chunam* surface.

Among the beautifully decorated palace enclosures of Udaipur mention may be made of the Chhoti Chitra Shali with its brilliant mosaics of peacocks ; the Manek (Ruby) Mahal scintillating with its figures of glass and porcelain ; the Moti (Pearl) Mahal decorated with mirrors ; and the Chini-ki Chitra Mahal, beautifully ornamented with inlaid mirror work and fine tiles.

Perhaps the finest examples of stone inlay-work are to be found in the superb monuments of Agra. In the Jassamine (Yasmine) Tower, no two designs are the same on the inlaid pillars. It is thus popularly named on account of the beautiful inlaid designs of Jessamine flowers. Exquisite examples of the art of inlaying are also to be seen in the Diwan-i-Khas, the Hall of Private Audience which was built in A.D. 1637. Here in the rich floral designs are to be found the true artistry and the craftsmanship of the Indian workers in stone. The pillars of the Khas Mahal, probably designed by Jahanara, the daughter of Shah Jahan, are lavishly inlaid and sparkle with jasper, agate, carnelian, lapis lazuli and bloodstone, with balconies so superbly fretted that the designs almost look like lace from a short distance.

In the Diwan-i-Khas in the Red Fort at Delhi, every pillar is inlaid with four panels at the bottom with the rest delicately designed in gold-gilt. In the Diwan-i-Am, the Hall of Public Audience, also are some superb examples of Indian *pietra dura* with panels inlaid with floral and bird motifs.

It is not known with any certainty whether there was any stone-carving of note in Agra before the time of the Mughals. It however seems to have become an important craft by the 16th century and under the patronage of Akbar, Jahangir, and Shah Jahan, it culminated in its finest work — The Taj Mahal. In Agra, two forms of the stone-mason's art is to be seen : the jali work or stone fretwork dealt with in an earlier chapter, and the *manabhat-kari,* the art of inlaying precious and semi-precious stones in marble, and rarely in sandstone.

Manabhat-kari, which has been rightly called the *pietra dura* of India, had its origin in a rough type of mosaic work which is to be seen in the earlier period of the Mughal era. It seems to have passed through three stages : bold geometrical designs in black and white marble, porphyry and other stones like those to be seen in the gateway at Sikandra. The mosaic work is of a broad and large nature, most suitable for gateways and such other architectural structures on which finer and detailed work would be completely lost. In the mausoleum of Itmad-ud-Daula we witness the second stage, the mosaic work having become more elaborate in pattern and in the use of a larger variety and number of stones. The designs are still arabesque though more complicated than those of the first period. This is clearly a transitional stage between the simple dignity of Akbar's architecture and the feminine delicacy of the time of Shah Jahan.

The last stage is that of true *manabhat-kari,* to be seen at its best in the Taj Mahal, with its floral designs. "All the spandrels, as well as the angles and important details, are inlaid with semi-precious stones. These are combined in wreaths, scrolls and frets, as exquisite in design as beautiful in colour, and convey a high idea of the taste and skill of the Indian architects of the age."

The actual process of inlaying may be of some interest to the reader. The marble, probably from the Makrana quarries, is rough hewn — the *mota kam* — work carried out by semi-skilled and poorly paid workmen. The stone is next smoothed and levelled with the *tanki* or cold chisels, and polished with the aid of Jumna sand. The semi-precious stones to be used in the work are first cut roughly to size and shape by a workman called the *kuttiya,* using a wire bow (*tarkumani*). The stones are next handed over to another and more skilled craftsman who fastens them on to steel patterns using shellac. The stone on its steel pattern is then applied to a grindstone, the *san,* and ground to the exact shape of the steel pattern on which it has been fixed. The minuteness of the work may be gathered from the fact that there is a separate steel pattern for every petal of a flower, claw and feather of a bird.

The marble and the semi-precious stones shaped as explained above are now ready for the inlayer, a man with much greater artistic sensibilities than the former who may be called craftsmen but not artists. The inlayer works from a fixed design, copied onto the marble by means of a "tracing paper" of mica. His tools are no more than a number of simple cold chisels, of different sizes and shapes, known as *nirji* and *nirja,* as well as a drawing compass and a right-angle. The marble is pricked through the mica tracing and then grooves or hollows are chiselled following the design and sized in depth to take the semi-precious stones ready-shaped and cut for the inlayer. It is in the making of the grooves that good or bad workmanship lies. If the depressions are too large for the stones, the cement made of white lime and a kind of gum and used to fix the stones into the marble, will show ; but in really good work, the stones will fit into the grooves so perfectly that no joints will be easily discernible. Once the stones have been fixed into the marble with the cement, they are covered with a small piece of glass that is heated by laying charcoal on it. Once the annealing is complete, the glass is removed and the inlaid work polished with putty powder.

The stones most used for inlay-work were white marble from the Makrana quarries, black marble from Rajasthan, yellow marble (*abri*) from Jaisalmer, Gwalior stone (*rattak*) from Gwalior, jasper (*zabarjad*) from Cambay, bloodstone *(shadinaj)* from Jubbulpore, agate (*akik*) and onyx (*sulaimani*), carnelian from Cambay and other places near by, carbuncle (*tamara*) from Jaipur, jade (*pazahr*), lapis lazuli (*lazuward*) from Ceylon, cloudstone (*badal*), etc. Some of the other materials which were sometimes used were coral, malachite, turquoise, porphyry, mother-of-pearl, and coral.

Regarding the use of mother-of-pearl in inlaying, H. S. Crosthwaite says : "Unfortunately it is very liable to chip, for which reason first-class workmanship is rarely bestowed upon it. Mother-of-pearl roses, inlaid with a rose-coloured cement, are much manufactured for sale to visitors. There is, however, one notable

fine piece of inlay work in this material namely the mother-of-pearl *tesserae* upon the bases of the columns, supporting the canopy of Shaikh Salim's cenotaph at Fathpur-Sikri." And he goes on to quote E. W. Smith about the workmanship of this fine example of mother-of-pearl inlay :

"The inlaying is so intricate, that it looks like damask work, but in mother-of-pearl instead of gold or copper wire. Each little piece of mother-of-pearl is exactly shaped and fitted into the allotted position previously prepared for it, and then secured with minute brass pins and shellac. It is impossible to describe the effect of the mother-of-pearl as seen in the dim light of the mortuary chamber. It is one of those things which defy description, and in order to realise its beauty it must be seen. The inlaying is most minutely and beautifully executed. There is nothing like it elsewhere in India."

* * *

"By moonlight the Taj appears to sparkle like a diamond in the bright slanting rays, and the inimitable *pietra dura* is as fine and precious as the embroidery on the garments of the Lady of the Taj herself. Such was the high skill of the Indian architects of the age. Such was their consummate achievement — the beautiful simplicity of the Taj Mahal. The Moghuls enshrined in stone the form of one of whom it could be said 'Her eternal summer should not fade.'" (Mary Ward, *The Statesman.*)

LAC AND LACQUERED WARES OF INDIA

Different kinds of painted or lacquered articles are made in many parts of the country. Shellac itself is manufactured on a large scale in certain regions of Bengal and Madhya Pradesh, and lac marbles, bangles, walking sticks and lacquered toys are made extensively, even by some of the primitive tribes, though the art of lacquering as applied to furniture, etc., is restricted to the larger cities and towns.

The multicoloured balls and sticks are very simply made by twisting together differently coloured lacs round and round the ball or stick in alternate bands, while in a softened state. The ball or stick is then held before a fire, the different colours of the lacs drawn into one another with a needle, and the article rapidly rolled on a smooth cold surface to solidify and set the lac. Mats are made by letting threads of different colours twist round and round a stick to cool and then breaking the coil thus formed into short pieces, each consisting of three or four turns of the coil. These are linked together to form the mats in variegated colours, black, golden yellow and scarlet predominating.

The process of making lac bracelets and decorative beads as practised in Delhi and some parts of the Punjab, Lucknow, Banaras, Patna, Bengal, etc., is rather interesting. To give a "silver" effect to the lac bracelet, tinfoil is pounded with half its weight of dry glue till the two form an amalgam in about six hours' time. This mass is then dropped into hot water and allowed to crumble into small pieces. The water is poured off and the tiny pieces washed by repeated stirring in water, till all impurities and dirt have been removed. When quite pure, the amalgam is boiled and allowed to stand overnight. The next morning a silvery glue is found deposited and this is used for painting on the lac bangles and bracelets with a brush. When dry, the silvery paint is burnished bright by rubbing and polishing with a string of beads. A similar varnish of a golden colour is made by boiling together copal, myrrh, and sweet-oil, and this also is applied with a brush. Such silver and gold amalgams and varnishes are also used for painting on articles like boxes, trays, ash-trays, plates, etc. The lac bracelets are often further embellished by inserting little bits of tin and copper foil and glass beads along the edges.

The manufacture of lac bracelets in the Panch Mahals district of Western India has been described in detail by H. A. Acworth. Formerly the lac was collected by the Bhils in the forests round about and sold to the lac workers. But this is not true today. As the bangles are made they are placed on the previously oiled conical head of a rice pounder about the size of a woman's forearm. When as many rings as possible have been placed on the pounder, they are all gently heated so that they stick to one another without melting. Thus a single bracelet consists of about twenty-five of these rings and it is next rubbed with brick powder and coated with copal varnish coloured yellow, blue, or vermilion. The next stage of the process is the printing of a design on the bracelet. Two ounces of tin-foil and a small lump of glue are pounded together for hours till they form a metallic paste of a dull grey colour, as explained before. This mass is boiled in a copper vessel over a slow fire and the solution finally strained through coarse cloth.

For the actual printing on of the design, cotton-wool is wound tightly round a small stick of bamboo, wetted and pressed to form a mass hard enough to allow a pattern to be impressed in it with a large iron needle. This "stamp" is dipped in the tin solution made as explained above and pressed on the surface of the bracelet, just as an office rubber stamp is used on paper. Then every day a special golden varnish is applied all over the "tin" pattern till it takes on the colour of gold. This is continued for two or three days, the varnishing taking place only once a day. The bracelet may be further embellished by studding it with drops of thin tin amalgam coloured white with chalk or red with vermilion. Besides bracelets, yellow and red striped armlets called *golias* are also made and these are worn between the elbow and shoulder.

Lac bracelets are also produced at Sylhet in Assam. They are made from a mixture of lac and clay, coated with pure lac coloured red, blue or yellow, and laid on in narrow stripes to form the ornamentation. The colours are brilliant and the bracelets are often a bit too showy for the fastidious taste. The lac bracelets and necklaces which used to be made at Indore and Rewa were much superior in design and in the quality of workmanship.

As to Delhi, lac bangles incrusted with spangles and with beads, are made. "Some are coated with tin, ground and applied as a paint, and then covered with a tinted varnish, a method of obtaining a metallic glimmer through colour which is characteristic of many Indian forms of decoration." (Dr. G. Bidie.)

Bracelets and bangles made of wood and then lacquered, as well as amusing toys and lacquered turnery (dealt with in the following chapter) are also made at Surat, Ahmadabad, certain places in the Bellary district, and near Mysore. Beautiful ornaments of lac suitable for women are a speciality of Berar and some other regions of the country.

Perhaps Indian painted or lacquered work is best known in other countries by its lacquered wooden and papier maché boxes, trays, and other small household articles, many of which are annually exported. These wares are really painted wooden or papier maché

articles and not true lacquer as compared to the Chinese and Japanese work of like nature.

"Nothing in the way of surface-decoration could be more rich and harmonious than the lacquer-work of India — perfect in design and execution, and of extraordinary cheapness," says J. B. Waring. Comparing the Indian craft with the lacquer work of China and Japan, he continues : "These Indian productions are more properly painted papier maché or woodwork, in which the varnish is mainly used as a preservative ; and, whereas the Japanese ornaments are of strongly naturalistic tendency, those of India are purely conventional, and embody practically the best and most sterling principles of that system of ornamentation. In almost every case the decoration is confined to conventional devices and foliage . . ." (*Masterpieces of Industrial Art and Sculpture at the International Exhibition,* 1862.)

Although in this book we are not concerned with the crafts of Ceylon, the reader's attention should be drawn to the interesting finger-nail work of Ceylon as he is likely to come across it in the Indian markets. Lacs of different colours are drawn out into long threads and applied to the previously warmed article which is to be decorated, to produce elaborate designs. The nail of the thumb is used to nip off the lac-thread, after it has been applied.

The traditional products of the different regions of India show certain peculiarities that are worth noting. For example, the boxes made in the Punjab are mostly lacquered in a rich purple colour, while those made in some areas of Rajasthan have a ground of a dull drab colour, the designs in two colours being conventional, either geometrical or floral, or both types alternating rhythmically to form a unified whole.

Like many other handicraft articles, the beautifully painted or lacquered papier maché boxes, trays, tobacco jars, ash-trays, and other small articles of domestic or ornamental use made at Srinagar in Kashmir are justly famous — perhaps the best in India. Two kinds of traditional designs are common : the pale shawl pattern painted on in many colours, a particularly suitable type of decoration for small articles, but unsuitable for use on large pieces like tables or chairs, screens, etc., on which it is sometimes unfortunately used ; the other is the minute flower pattern with roses, pinks, narcissus and jessamine treated naturalistically as to form and colour, but without any attempt at chiaroscuro.

Describing the lacquer wares of Kashmir, Moorcroft confirms that they are justly celebrated for their fine quality. "They are of several varieties, classed under two heads — Masnadé or royal, and Farsi or Persian. The former are articles of table furniture more or less bulky ; the latter are portable. They are usually long shallow boxes, rounded at the ends, with a sliding convex cover. They are remarkable for the variety and elegance of the patterns with which they are painted, generally of flowers ; for the brilliancy of their colours, and the beauty of the varnish. They are most commonly made of paper which has been written upon, but sometimes of light wood. The ground of the colouring is commonly metallic, of gold or of tin, and the pigments employed are cochineal or the kermis insect, ultramarine from Yarkand, white lead from Russia, as well as verdigris from Surat, and possibly from Britain. Other colouring drugs are found in the country, or imported from Hindostan, varnishes are obtained from the resin of the aloe or the storax ; but the best is that of the Kahruba, which is usually regarded as amber, but is by some said to be copal. Its abundance and cheapness in Cashmere certainly indicate its being the produce of some native plant. The brushes are made of the hair of the shawl-wool goat, and the pencils from the hairs in the fur of the cat.

"The painting is of two kinds — raised and flat, and the former admits of several diversities, according to the greater or less relief given to the work. The elevation of the ornamented or embossed parts is given by forming the ground of the ornaments with white lead, mixed with a solution of glue.. The surface is spotted with dots of white paint, which are left to dry, and are then trimmed with a knife ; they are then covered with a surface of varnish, and upon that the colour of the ornament is laid." On this several further coats of clear lacquer are applied which not only preserve the painting but add additional lustre and confer greater durability.

Moorcroft was an authority on Kashmir crafts and although he wrote many years ago, the above quotation is of historical importance.

Bareilly in the north has always been well known for its black and gilt furniture that once enjoyed a certain popularity. But this old industry has now been replaced by woodwork and furniture manufacture under Government support. The lacquer work of Karnal is generally done on large boxes and trays of considerable size and is often embossed with flowers, as a rule painted on a green ground and touched up with gold gilt.

Writing about the lacquer work of Savantwadi, a small state of pre-Independence days, Sir George Birdwood says that it is applied "to native toys, such as models of hand-mills, weights and measures, cooking utensils, and vessels for eating and drinking, and to the peculiar fans of the country, and Hindu playing cards. These are circular, and being painted with mythological subjects in bright colours, are most pleasing objects, and interesting also as illustrating the state of the art of painting in India, in districts where it has remained uninfluenced by European teaching and example."

Sir George Watt does not care to call such painted and varnished articles as lacquer ware, especially not that of Savantwadi which according to him are woodwork articles painted in a form of oil colours, with red or black as the background. The central panel usually carries boldly treated mythological figures in the articles made here ; the borders are generally of bright green leaves and pink flowers. He writes :

"The supports and feet of the brackets or tables are usually done on the turning-lathe and display a most delicate and charming touch in lac line colouring. This circumstance has probably suggested the description of Savantwadi work as being a form of lac-ware. Its chief feature is the oil-painted flat surfaces, not the small turnery details." By lac-ware, Sir George Watt is apparently referring to the craft of lac-turnery that has been dealt with in the next chapter.

Muzaffargarh in West Punjab was once famous for its painted and varnished bows and arrows, this style of decoration being known as *kamangiri* from "kaman", a bow. They were very beautiful, both in design and colouring and often were true masterpieces of industrial art.

Jhansi annually produces a large number of small painted wood-wares like trays, boxes, etc., generally painted black and with the floral designs in red and dull green. Artistically these articles do not rank very high, nor do the painted wares of Gwalior.

When we turn to Bikaner, we find painted and gilded woodwork to be the chief form of house decoration, especially windows and doors. The designs may be slightly raised above the surface with clay, suitably painted and carefully varnished for brilliance and durability.

T. H. Hendley calls this the "art product *par excellence*" of Bikaner, a type of craft-work that can be done on stone, wood, metal, and even glass, and believes that it was perhaps first used in the decoration of a large audience hall in the palace of the Maharajah. Major A. C. Talbot, who was the Political Agent at Bikaner in the latter part of the last century, has described the actual process thus : "On the surface of the wood, which had been previously well rubbed with liquid clay and allowed to dry, the outlines of a flower pattern was stencilled with a bag of powdered charcoal though perforated paper. Successive layers of liquid clay were then applied with small squirrel hair brushes within the outlines of the pattern, each layer being allowed to dry before the next application, until a raised surface, bringing out the stalks, leaves and petals with sufficient distinctness had been produced. The whole surface was then fixed by a coat of paint, and when this was dry gold leaf was applied over all." This is very similar to the European gesso work, except that in the latter a preparation of whiting, glue, etc., is used instead of clay for raising the design.

The ground of the lacquer-ware of Mysore and certain parts of the Deccan plateau is of a transparent green painted on tinfoil. The subjects, which are predominantly mythological, are then lacquered in very bright opaque colours on the shining surface, the effect produced being charming and with almost the brilliance reminiscent of the famous enamels of Jaipur.

Many places in the south are famous for their painted or lacquered articles. The designs are mostly floral. A speciality is the making of palm-leaf, paper, or cloth fans, beautifully lacquered in bright colours. Lacquered toys — miniature cups, pots, and other domestic and kitchen utensils — are made from the light-coloured wood of *Holarrhena antidysenterica* called *vepale* locally. These toys are accurately turned out, nicely coloured and finished, and are water-proof. The colours used are actually made from coloured lacs and are not merely water-colours finally varnished or coated with a clear lacquer.

In certain areas of the original state of Hyderabad, especially the Raichur district, beautiful lacquer work is produced, mostly for domestic use. This is of two kinds, the embossed or *munabathi* and the plain or *lajawardi*. It is said, "The embossing is produced by a tedious process. Shells or slags from the forge are finely ground with some glutinous substance, which is kept a secret, and layer upon layer of this ingredient is put on with a brush till the requisite height is attained. The whole is then covered with gold leaf, the designs are picked out in paint, and the article varnished."

A simple but beautiful type of work is that of Nirmal, a small town in the Adilabad district of Andhra Pradesh. Before the craft was revived and perhaps improved, the process followed was equally effective. A glue was made of tamarind seeds boiled to the consistency of a paste and then mixed with whitish clay. This preparation was applied to the toys and other articles and rubbed smooth with coir. Then came the decoration in bright colours, with gold predominating. The colours used previously were made of pulverised stones and earths of different tints as well as white clay dyed with vegetable colours. The peculiarity of the process lies in the way the gold colouring is produced. Only two kinds of plant juices are boiled in linseed oil and used as the gold colour. On exposure to the sun, a chemical reaction apparently sets in to produce a gold finish that is permanent and never tarnishes. Although bright colours are preferred for the designs, the base colour of the article is generally black or an appealing terracotta, although other shades are now being used.

Recently this industry has been revived and articles of common use are extensively produced, more with a Western and sophisticated appeal rather than traditional in form — plaques, ash trays, boxes, round plates, small fruit and nut dishes, lamp stands, trays, ornaments, playing-card boxes, etc.

New designs and modern techniques have now been introduced which makes it possible to work even during the rainy season, something not possible with the old process. Modern types of paints and varnishes are freely used but it is unfortunate that often designs are adopted which are not traditionally Indian. Floral designs, copies of old Mughal miniature paintings and the Ajanta frescoes are common.

INDIGENOUS CRAFT OF LAC-TURNERY

What has been discussed in the previous chapter as lacquer-ware is really painted work, the colours used being either oil, water, or lacquer. The true lacquer work of India, an indigenous craft, is what should really be called lac-turnery.

In lac-turnery, the lac is not applied as a paint or coloured varnish, but in its dry state by means of heat generated by friction. It has been said that "the resin — lac — in some form is used in almost every art industry of India, and in the form of bracelets it holds an honourable position in the domestic life of perhaps one-third of the entire population of this country."

The wood-turner is a common sight in almost every Indian village and enjoys a respectable position in the rural community. For ornamental lac-turnery, only close-grained and light coloured woods are used, and the lac itself coloured with sulphur, orpiment, white lead, prussian blue, lamp black, indigo, or red mercuric oxide; these days even fugitive aniline dyes are also sometimes used for colouring the lac. If a scintillating metallic effect is desired, the lac is mixed with powdered mica or pulverised tin-foil or gold leaf, or an amalgam of mercury, lead and tin. The addition of these produces a mottled effect on the wood that is a peculiarity of the work of Mysore.

The craft of lac-turnery is not very difficult and can be easily explained. Shellac is first melted by holding over a fire till it is plastic. Then it is placed on a stone and a small amount of the desired pigment, previously dissolved in oil or water depending on the substance used, is placed within a hollow made in the surface of the plastic lac. This is closed by drawing the hot wax over the hole and the lac strenuously hammered and kneaded till it achieves a consistency of rubber. The lac is now made into sticks of about the same length and thickness as an ordinary pencil, or sometimes very much thicker for certain special purposes. These are known as *battis* in most parts of the country.

As said above, mostly mineral colours are used for mixing with the lac. In the Punjab, the following formulas were, and possibly are, followed for making the coloured *battis,* as recorded round about A.D. 1890 by M. F. O'Dwyer :

Yellow : ¼ seer of shellac, 2 chhataks of arsenic sulphide called *hartal.* The latter is well pounded, the shellac added and warmed gently.

Red : ¼ seer of shellac, and 2½ chhataks of cinnabar. Pounded with water for several hours; when dry mixed with the shellac.

Green : 1 chhatak yellow ; warmed and mixed with indigo.

Black : ¼ seer of shellac and 2 chhataks of carbonate of lead, pounded and mixed with indigo.

(Note : a chhatak used to be about 2⅛ ozs.; 16 chhataks making a seer)

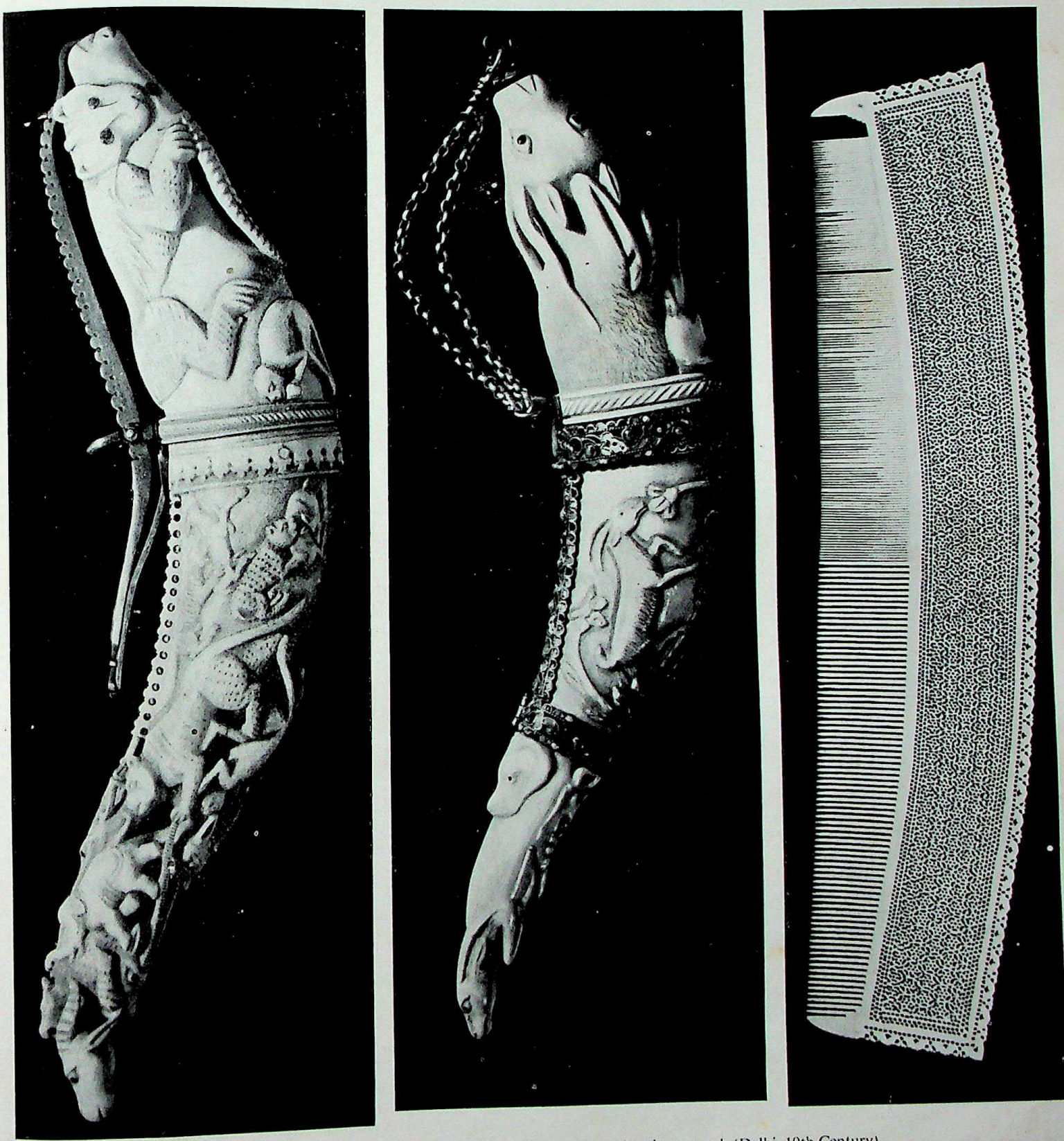
The Indian lac-turner's lathe, called *adda* in the Punjab, is a simple and crude affair. It consists of two bars of iron, one fixed in the ground and the other adjustable for distance. On the inner surface of each bar is a spike to which the block of wood to be turned is fixed. Between the block of wood and the adjustable bar and over the spike a cylindrical peg is fixed, round which the thong of a bow is once passed. The bow is worked by drawing it backwards and forwards to give a rotary movement to the block of wood.

According to M. F. O'Dwyer, the following terms are applied to the different parts of the lathe and turning accessories in the Punjab : lathe (*adda*) ; iron bars (*killa*) ; block of wood to be turned (*mochha*) ; cylindrical peg (*chari*) ; bow (*kaman*) ; heavy chisels for turning (*nan* and *nihan*) ; light chisel (*mathna*) ; rest for the chisel (*addi*) ; pointed chisel used for grooving (*buraki*) ; narrow chisels of various sizes (*sathra* and *sathri*) ; chisels for turning the inside of vessels to be turned hollow (*patra* or *bomkinja*) ; parting chisels (*churna, rachi*) ; adze (*tesha*) ; drill (*varma*) ; saw (*ari*) ; files (*reti*) ; polishing stick (*rangata*).

The wood to be used is fitted into the crude lathe and turned into the shape required. It is next polished with a very fine powder made of crushed pottery ; this has the effect of filling up the grains of the wood. Should there be deeper cracks or cavities, these are filled with a composition made up of wood dust, lac, etc., and pieces of thin cloth glued on the imperfections. The article thus treated is now repeatedly coated with a preparation of pottery dust and glue, polishing with a palm-stick following each coat. Thus all the imperfections are filled and made to disappear.

After the article has been made quite smooth and perfect, the coloured *batti* is pressed against the revolving wood. Naturally heat is generated due to friction and this melts the lac and coats the wood in an irregular fashion. Next, a piece of hard wood is applied to the revolving article to make the lac coat uniform and diffuse the colour. Finally, a piece of cotton cloth moistened with sweet oil, or better still, sesamum or gingelly (*til*) oil is rubbed against the article while it is still revolving in the lathe. This gives the lac a fine polish that it never afterwards loses.

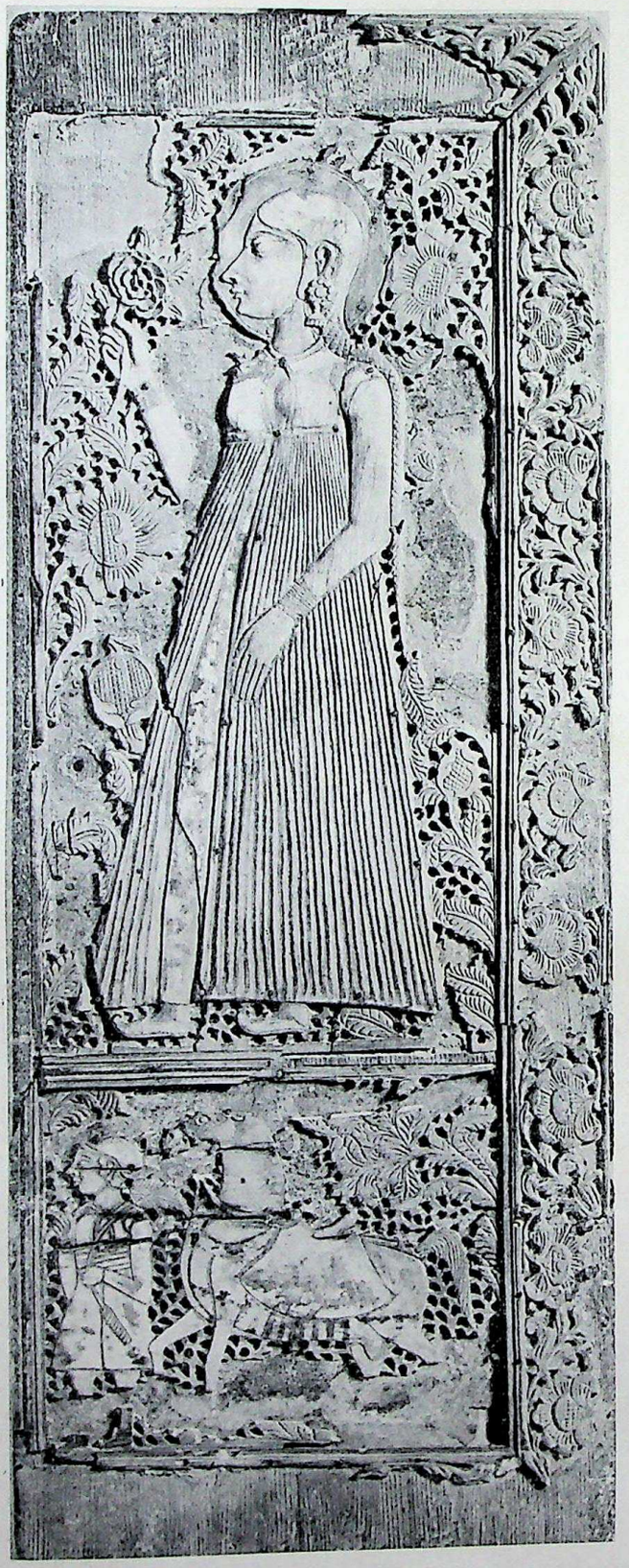
The designs met with in Indian lac-turnery are generally distinctly artistic and have a richness of effect that is difficult to describe, but always capable of appreciation by those aesthetically inclined. Naturally, due to the process employed, the articles are either coloured uniformly in one hue or decorated with



Two carved ivory powder flasks (Mysore, 17th Century) and an ivory comb (Delhi, 19th Century)
(By Courtesy of State Hermitage, U.S.S.R.)

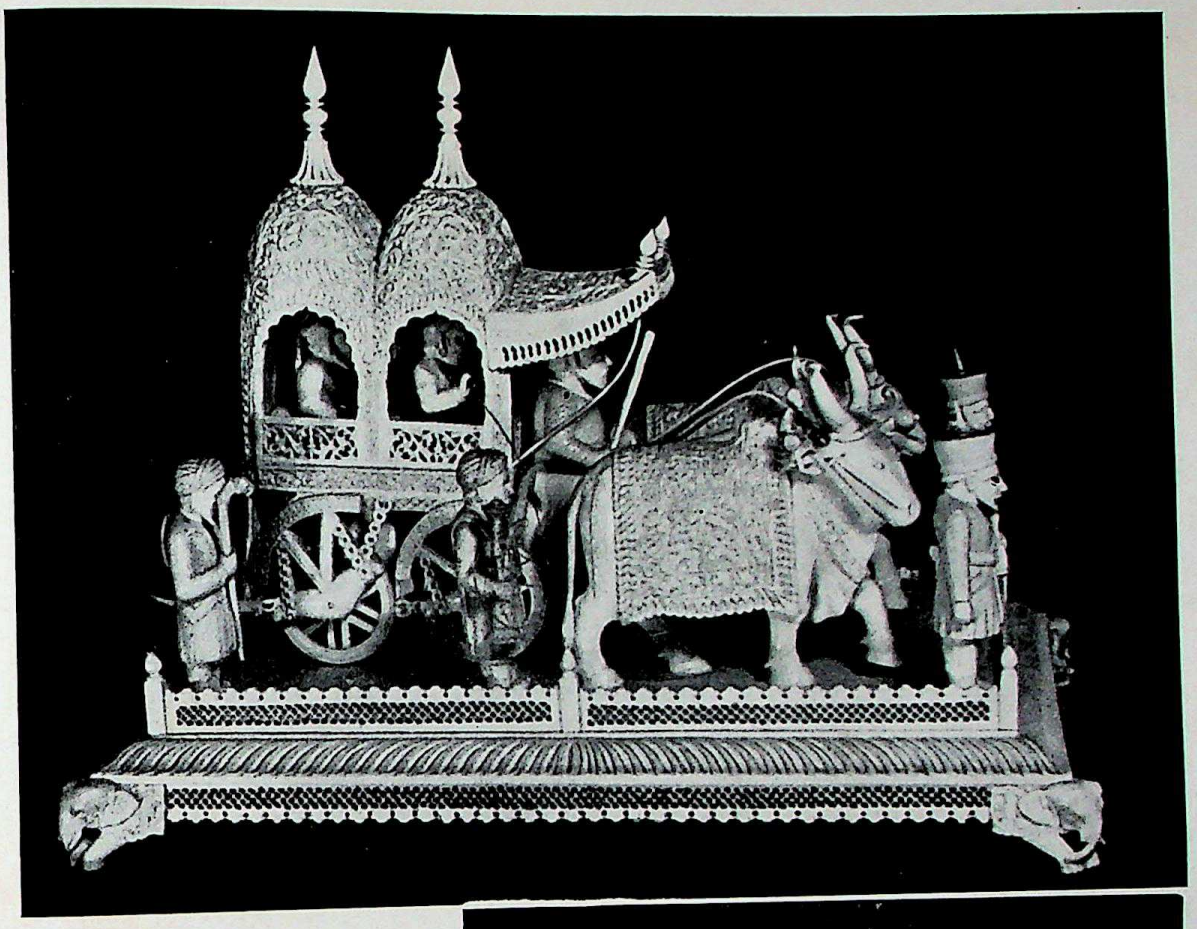
Finely carved ivory statuette of Saraswati, the Goddess of Learning. Modern.

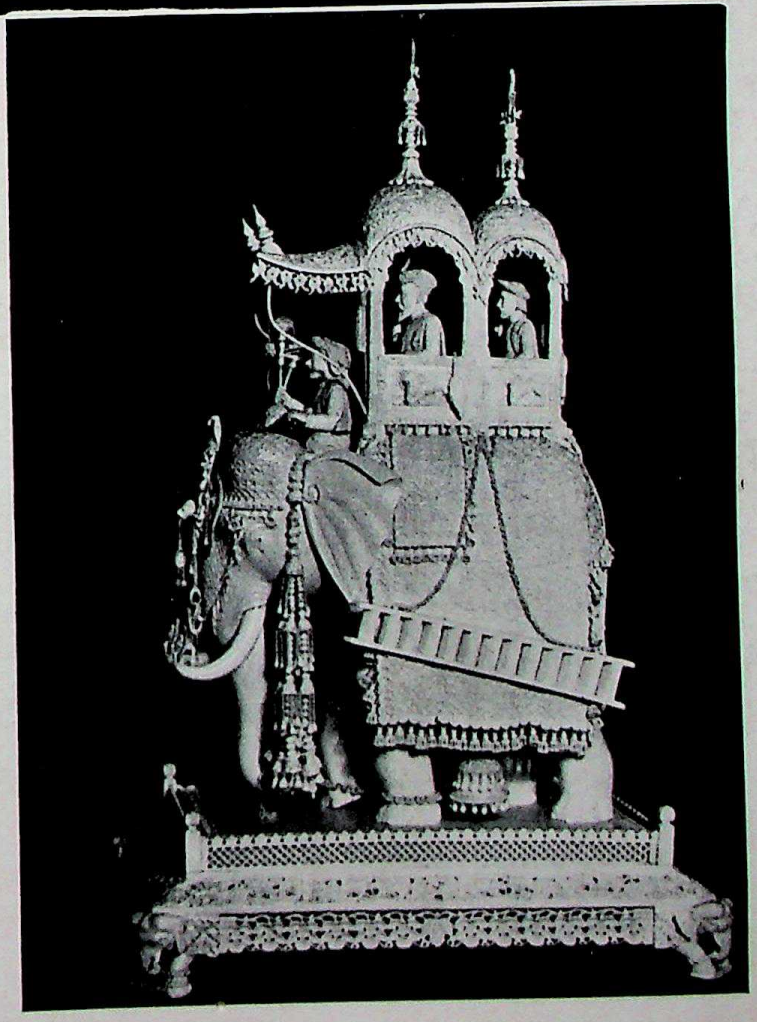
(By Courtesy of the State Museum of Oriental Culture, U.S.S.R.)



Ivory panel carved in low relief. 18th. Century.

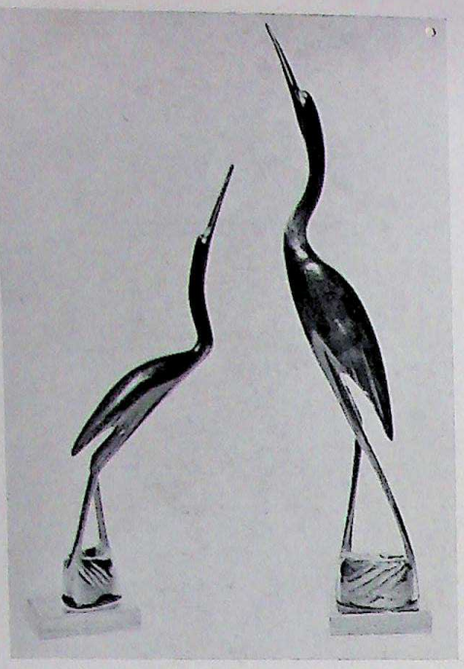
(By Courtesy of the Museum of Fine Arts, Boston)

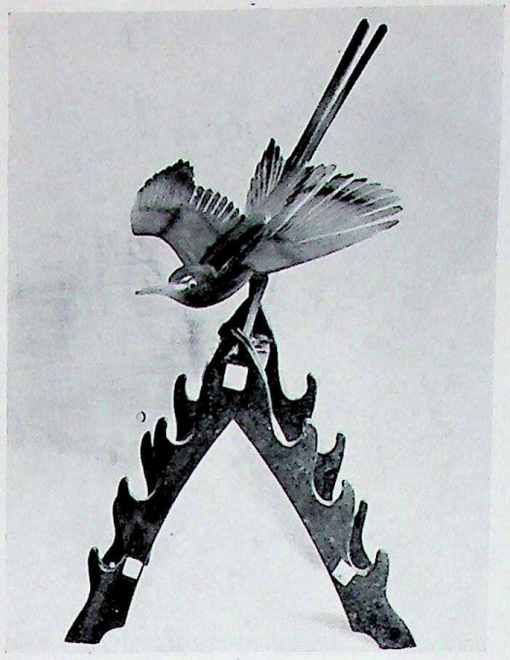




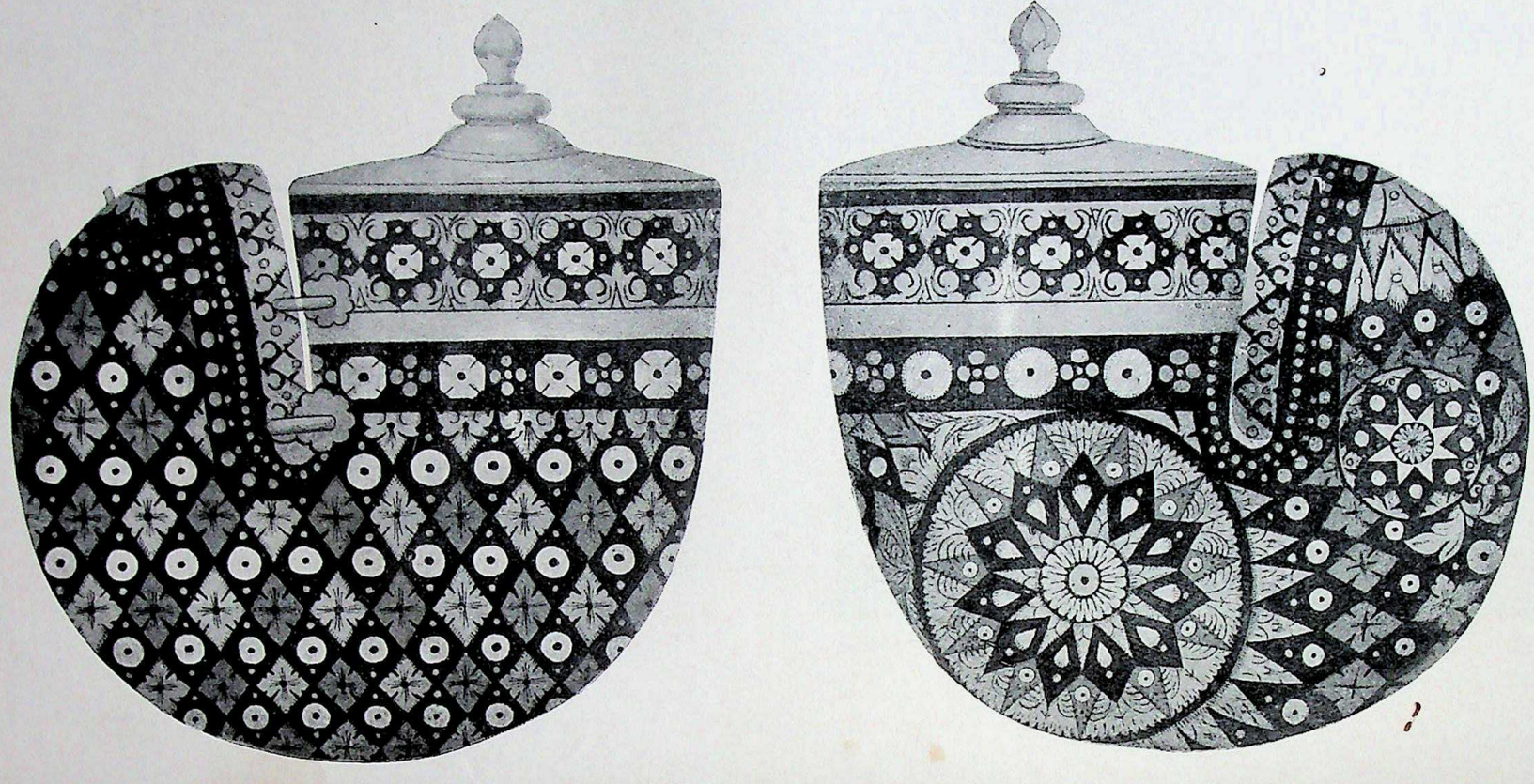
An intricately carved ivory covered cart drawn by bullocks, and carved elephant with howdah. This carving is said to have cost about Rs. 20,000.

(*Photos : R. Lakshmi*)

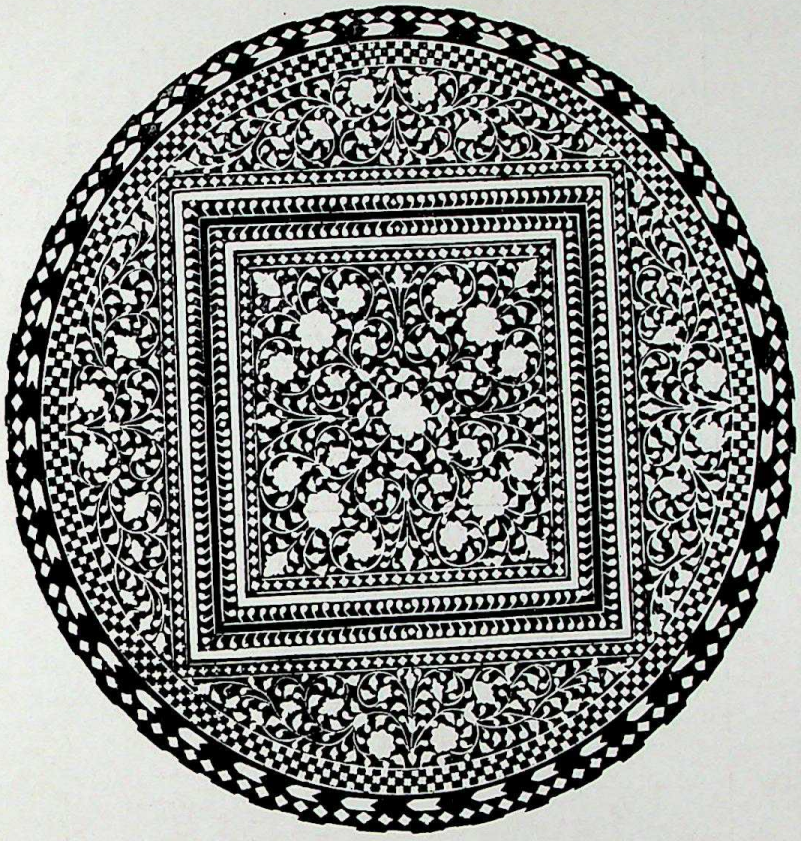




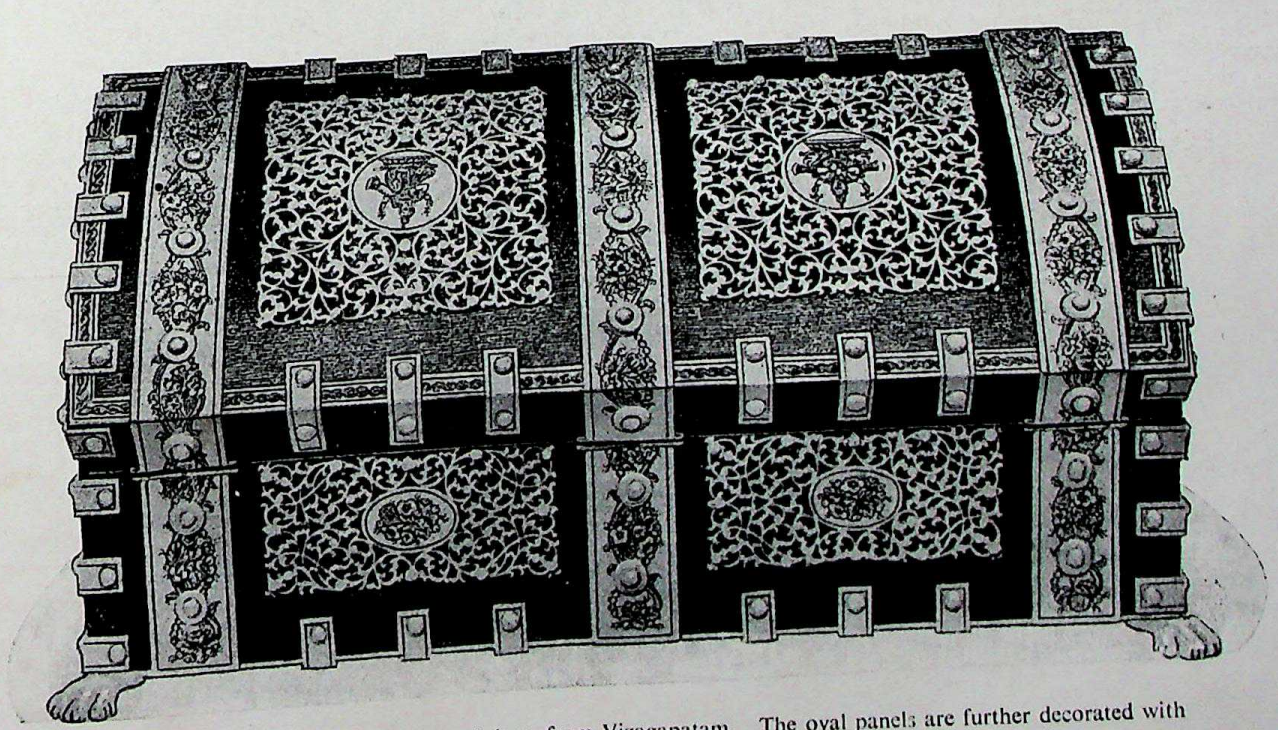
Cranes, elephant and a bird pen-rack made of buffalo horn. Modern.
(*Photos : T. S. Vaswani*)



Two sides of a buffalo horn powder flask, inlaid with ivory and mother-of-pearl. Made in Rajasthan in the last century.
(From *The Journal of Indian Art and Industry*)

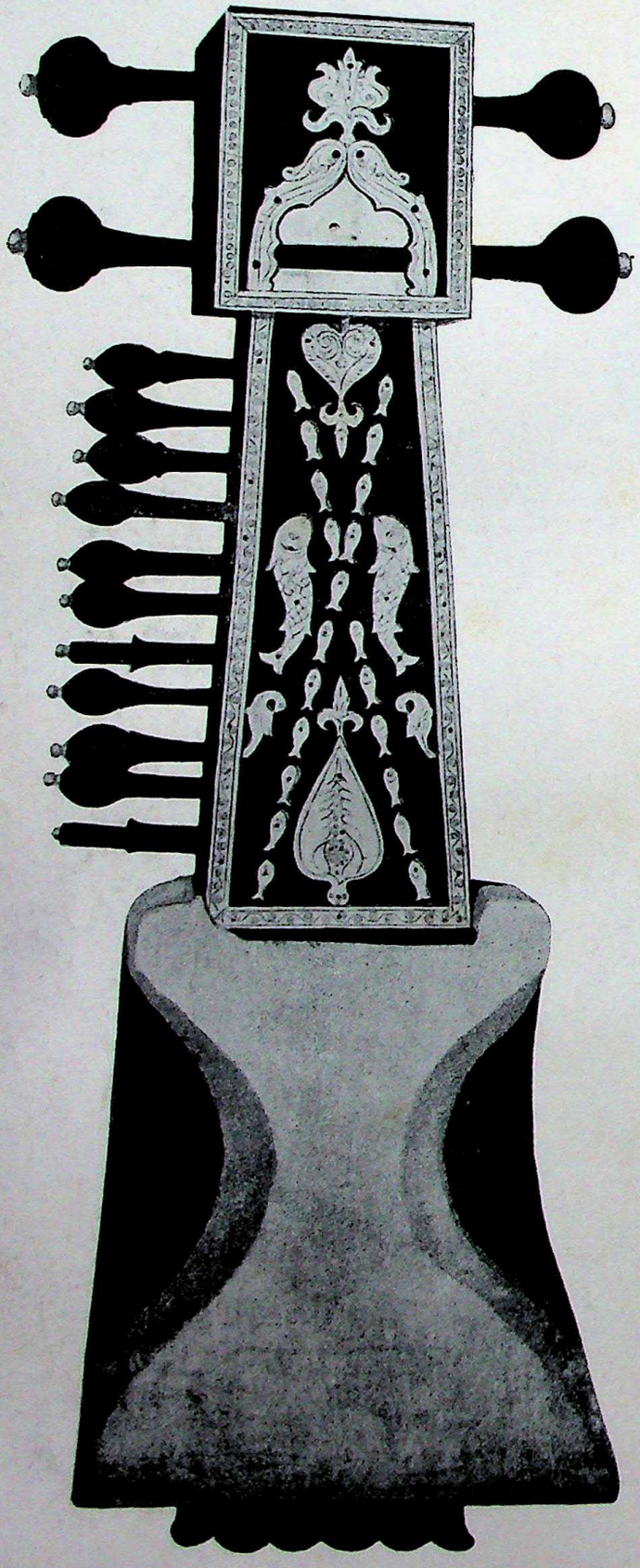


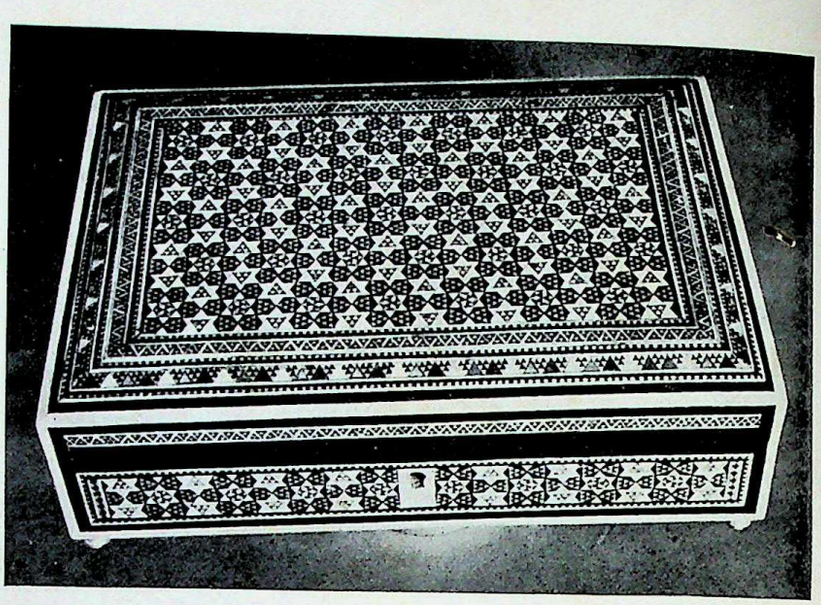
Ivory inlaid table-top from Hoshiarpur in the Punjab. The design is typically indigenous.

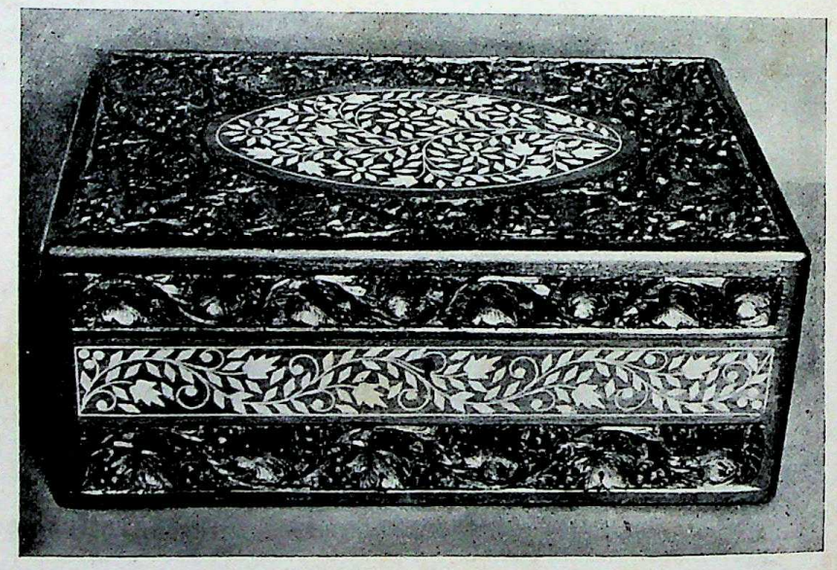


Sandal-wood casket with fretwork ivory inlays, from Vizagapatam. The oval panels are further decorated with etchings in black of mythological figures.

(From *The Journal of Indian Art and Industry*)







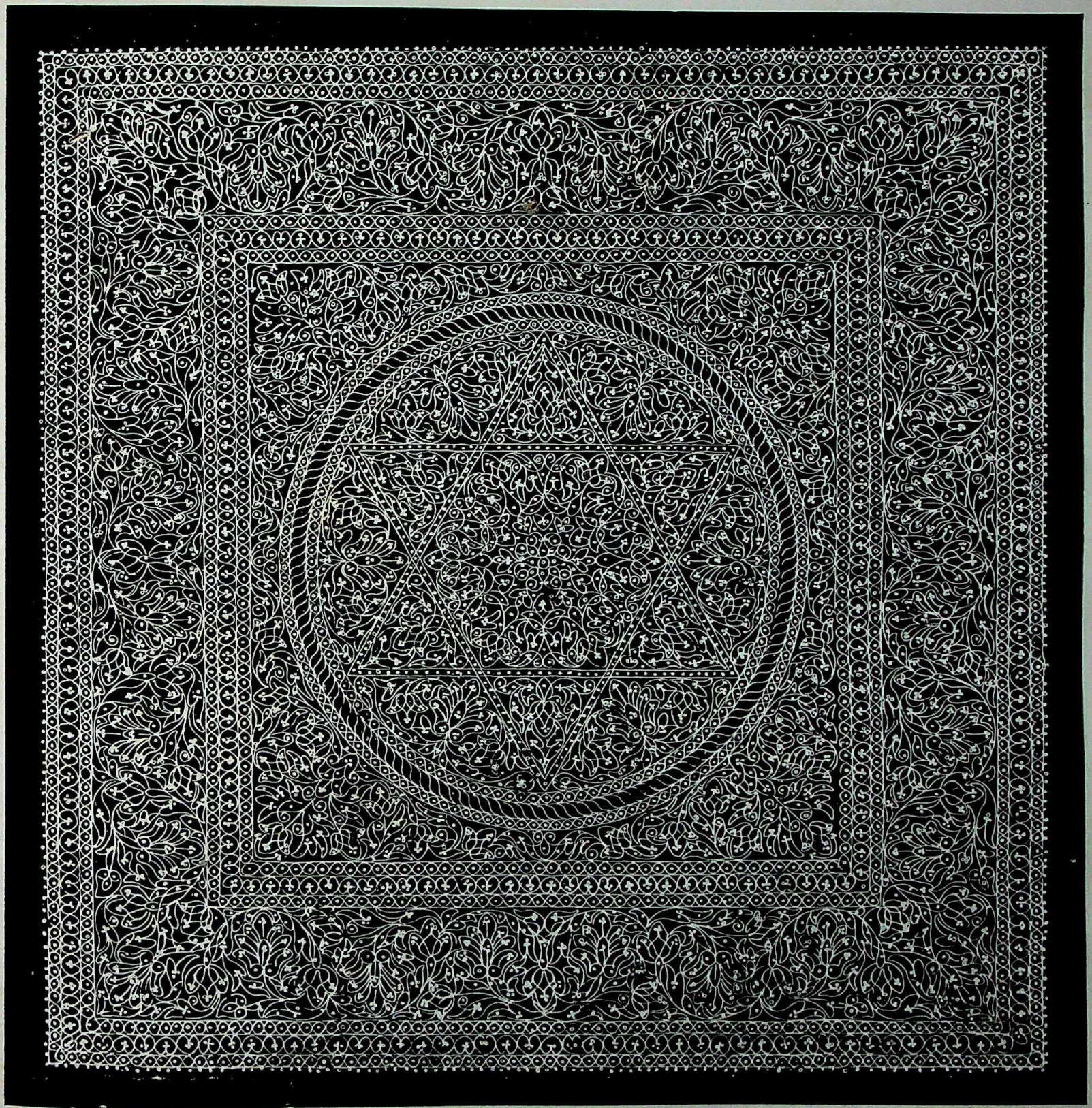
Top : Ivory inlaid box in a geometrical design.

Bottom : Carved wooden box with ivory inlay on lid and sides.

(*Photos : A. S. Vaswani*)

Example of inlay work in musical instruments. A *sarangi* from Mysore — a string instrument played with a bow. The strings have been omitted from the illustration.

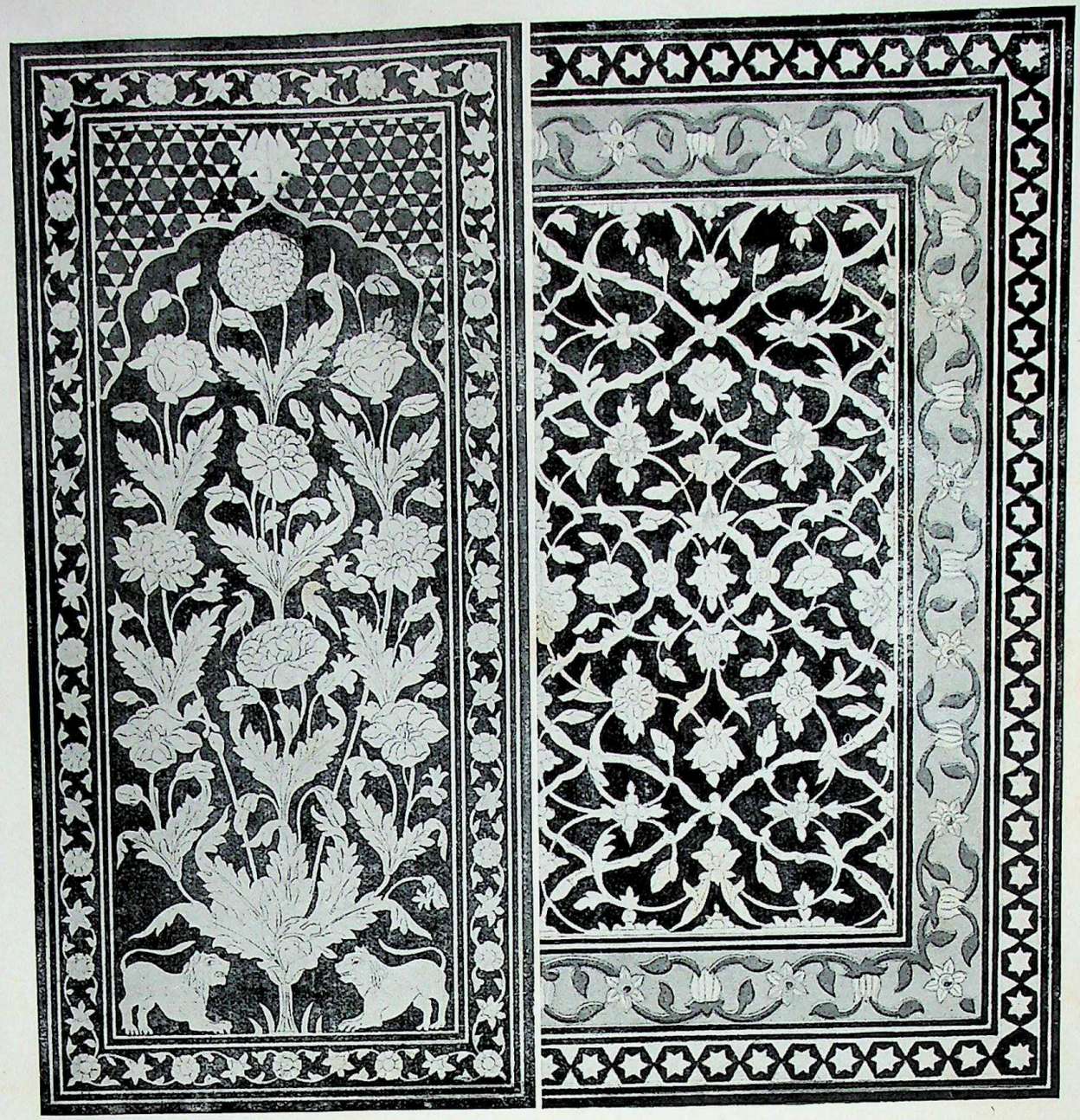
(From *The Journal of Indian Art and Industry*)



A panel in tarkashi work from Mainpuri, size 12½" square. The double triangle enclosed in a circle in the centre of the design is a favourite device of both Hindu and Mohammedan designers. Such decorated panels can be inserted in table-tops, in furniture, cabinet doors, large boxes, etc.

(From *The Journal of Indian Art and Industry*)

Beautiful brass inlay panel from Chiniot. The brass pieces are fixed in place with minute nails.



Unrivalled examples of ivory inlay work from the Golden Temple at Amritsar. The wood is shisham. Some of the ivory inlay pieces are dyed green and red.

(From *The Journal of Indian Art and Industry*)

bands or rings of different colours, or are spotted. Some of the ornamental effects met with in this craft deserve mention although the following description cannot give any real idea of the beauty of the effect produced by the Indian lac-turner.

Plain Decoration. Here the article is coloured uniformly, and this type of work is turned out almost everywhere in the country. Some of the more important centres are Patna, Birbhum and Murshidabad in Bengal, Assam, Agra, Fatehpur, Lucknow, Mirzapur, Banaras, certain parts of the Punjab, Alwar, Bikaner, Jodhpur, Bangalore, Mysore, and certain regions near Madras and in the Bombay State. Sometimes many coats of different coloured lacs are given, one on top of the other, producing a rich blending of hues. The articles made are lamp-stands, bed-posts, cradles, round boxes, and other objects which can be turned on a lathe.

Cloud or Abri Work. After turning the object on the lathe, it is polished and given a uniform coat of yellow lac. Then the turner takes a *batti* of orange or red colour and of a very hard consistency, and "by allowing the red hard oil *batti* to tremble in the hand and to thus touch the revolving object interruptedly, numerous irregularly shaped spots are imparted." Next, a black lac stick, of large size and soft consistency, is used to add black borders to the orange or red spots. Finally, the interspaces are filled with a white *batti.* Various modifications of the process are possible and many types of cloud effects are produced. Though this type of ornamentation is also practised almost everywhere, the best work originates in the Punjab, in Sind, and in certain regions of Gujarat.

Fire or Attashi Work. As usual, the object is turned and carefully smoothed and polished. It then receives a coat of finely pulverised tin-foil formed into a paste with glue. This coat may be uniform or made up of a large number of tiny dots applied very close together. On top of the tin coat, red or yellow lac is applied so that the metallic brilliance of the tin showing through the thin lac coat, gives the articles a fiery glow. The article is finally further polished by means of a kind of agate ; this hard stone produces much heat by friction, making the lac coat thinner and more translucent, allowing the metallic sheen of the tin to show through.

Etched Nakshi or Pattern Work. Soft *battis* of different colours are applied one on top of the other, there being three or four uniform coats. As a rule, the first coat is yellow, the second red, the next green, and the last black. Now, with a fine pointed stylus the lac coating is scratched, allowing the operating hand to press heavily or lightly according to the depth of the engraving required to produce the different colours. Thus, on a solid black background would be produced a design consisting of red flowers, green leaves, and yellow stems, with multi-coloured shading and other details.

In some parts in the north of the country, the floral designs are produced mainly in different shades of reds and browns, with a soft blending of the shades that is artistically very appealing. Or a red and brown fern-like ornamentation may be produced on a green background, the arrangement generally being geometrical. Jaipur produces articles with etched hunting scenes "in which the shading and colouring of the figures are attained through the varying degree of pressure given to the chisel." Or again, in other areas, the floral designs may be mostly with yellow and red flowers with the surface in green, the latter panelled and with animal figures interspersed among the foliage. Or the background may be black and the design in yellow shaded with green ; yet again the design may have the flowers in red and a border in yellow.

Sir George Watt, referring to this etched *nakshi* work, writes : "Throughout India this art of lac-etching is known and practised, the designs varying with the art instincts and religious feelings of the people. Usually it is only resorted to for the ornamentation of small portions of plain lac-ware. In other localities plain lac-work seems never to be produced, and the most ordinary articles of every day use are elaborately ornamented with etched *nakshi.* The artistic workers in lac (more especially the *nakshi* form) are invariably Muhammadans."

Scraped Nakshi Work. In this type of ornamentation, the article starts with a plain *attashi* or "fire" effect, and after polishing with oil, the designs which may be floral or hunting or rural scenes, are worked on the surface by scraping lines or larger areas of the designs in the coats of the original oil-bound *batti,* and applying a water-mixed *batti* as the article revolves on the lathe. Thus only those lines or areas which have been scraped off take the new colour, the original oil-polished areas refusing to accept the water-bound lac. After this second colouring, the article is once again oil-varnished all over, and different parts of the design which have to be coloured in another hue, are scraped and treated as before. This is repeated again and again till the design has been completed and given all the colours intended. Hoshiarpur in the Punjab and Jodhpur in Rajasthan are best known for this kind of work.

To quote Sir George Watt again : "But occasionally longitudinal and parallel lines are scraped on a lac-coated surface, one after the other, and the superfluous colour removed until the article is seen to have a ground colour with a multitude of lines running along its length. If now it be desired to cause these to become variegated, an eccentric movement is communicated to the lathe while a piece of hard wood is pressed firmly against the lac coating. The result of this is that the straight lines are dragged into the zig-zag form . . ."

Painted Designs. The article after it has been turned is carefully polished with fine pottery powder. Then those areas like panels on which flowers, animals, or hunting scenes have to be depicted, are given a ground of white paint. The desired design is then painted on with water colours and brushes. When

perfectly dry, the article is varnished with lac dissolved in spirit. When thoroughly dry, it may then again be fixed in the lathe and the design further enriched by one or all of the usual methods of lac ornamentation. This form of decoration was to be seen at its best on articles made in Alwar and in Hyderabad (Sind).

Writing about this, Sir George Watt makes the comment that "One of the most striking peculiarities of this style is that no ground colour is given, so that the rich texture of the wood shows through the transparent lac varnish. The borders and certain restricted parts are colour-lac coated and scratched (*nakshi*) but only with a view to give panellings or borders and rich contrasts."

Tin-foil Ornamentation. The technique of making coloured tin-foil has been known in India since olden times. The process followed is quite simple. A tiny piece of lac of the desired colour is placed on the tin-foil and laid over a slow fire. The lac melts and completely covers the surface of the foil. The coloured tin-foil thus made is used widely in the country for producing imitation jewellery, and for use in lac-turnery. Actually, its use is more common on articles that cannot be turned. The coloured foils are cut up into different shapes and glued onto the surface of the wooden article to form the design. When completed, the whole surface is protected with a varnish of lac in spirit. If, however, it is possible to turn the article on the lathe, it may be revolved between the lathe centres and coated with lac in the usual way, instead of varnishing. If the varnish used is itself tinted yellow, the tin-foil underneath shines like gold. This custom of using tin-foil under the lac used to be very popular in Baroda and is even today to a certain extent. It has been pointed out that instead of a lac varnish, sometimes a golden varnish made of copal, myrrh and sweet oil is used, the application naturally being made with a brush.

From the point of practical and historical information, the following detailed description of lac-turnery by B. H. Baden Powell is of great interest :

"When about to apply the sticks of lacquer colour, the wooden article, duly smoothed and clean, is set on the turner's frame and made to rotate. If the colour to be produced is an uniform surface of lac colour, the lac-stick is pressed rather hard against the wood and the colour comes off as the heat produced by the friction is sufficient to soften the lac and detach a portion. When enough colour has been applied, the article looks dull and streaky, but a piece of bamboo is taken and a fine edge put on it with a chisel ; this is skilfully rubbed over the surface of the article till the colour has evenly spread, and by skilful manipulation a polish begins to show on the surface, which is enhanced by a gentler application of bamboo edges, and finally completed with oil and a rag. To produce the mottled appearance so much admired, the sticks of colour are selected of a rather harder composition, and less easily softened by heat. The article to be coloured is set revolving, and the workman, holding the colour-stick against it, very lightly allows a point here and a point there of colour to attach itself ; the wood soon appears to be sprinkled over with coloured dust.

"The workman takes another colour and repeats the process, moving the stick up and down along the the revolving block, when by his skilful manipulation the second colour adheres at points which the first colour has left blank ; sometimes a third colour is touched in in the same manner. When enough colour is on the surface, the different points of colours are rubbed together and combined into a mottled or marbled appearance by rubbing, as before described, with a bamboo edge, and finishing with a rag and oil. The prettiest mottle is that of crimson and black, crimson and white, and blue and black. Around the rim of a box or lip of a cup, a border is often put on, with a flower pattern on it, which is done in a different way.

"The article is again set spinning on the frame, and colour applied where the desired border is to come, in a uniform band, and well rubbed in and smoothed with bamboo ; a coating of red is always given first, over the red, a coating of green is applied till the red disappears, and over the green black.

"The flower pattern is produced with a small sharp chisel ; so delicately does the workman adjust the force and depth of his cut, that he will, for the flower, let us say, make it appear red by cutting away the black and green coats and exposing the red layer, for the leaves he will scratch down to the green one, and for a white line he will cut down to the wood. A mistake seems never to be made in this work ; a slip of the tool would of course spoil the whole." (*Panjab Manufactures.*)

Recently, the author had an opportunity of examining many modern specimens of lac-turnery, and it was found that today the craftsmen do not always follow the old and laborious process. Much inferior work is quickly turned out by giving the articles a basic coat of lac of the required ground colour whilst still revolving on the lathe. The designs are then painted on with a brush, and a final transparent coat of lac varnish given to protect the colours. The result is often rather garish and can stand no comparison with the beautifully dignified objects made in the past by the old and traditional methods described above.

Turned and lacquered articles are made in many places, the commonest objects being legs for bedsteads, cradles, plates, boxes, toys, tobacco jars, chair and table legs, walking sticks, vases, teapoys, round trays, etc.

Special mention may be made of Jaipur work. "Wood is turned into round shapes, boxes for tobacco or opium, bedstead legs, rulers, staves, etc., and then lacquered in bands of pure bright colours or in variegated designs by the application of the lac as the article is rapidly turned on the latter, the whole being concluded with good polish." (T. H. Hendley.)

The work produced at Dera Ismail Khan in the north-west region of Pakistan, also deserves a few lines

of description. Only two or three colours are applied in patches to produce a marble-like or mottled ground effect. The borders are made also in two or three colours superimposed and the design engraved with a chisel. The superimposed colours are usually red first, then green and black last. The designs are generally scrolls of fern-like characteristics, incredibly fine and executed with great delicacy and skill. It is said that the designs are mostly engraved by women.

In the Hoshiarpur lac-turned work, we find the use of a metallic tin background under superimposed transparent colours. Apart from the designs scratched in the lac coatings, mythological figures may also be painted in a bold style and subsequently varnished. The colours used are nowadays mostly artificial aniline dyes. A speciality of the place is the scratching of the design or figures in the lac-ground of one colour and then filling the lines with another colour, the whole surface being made smooth.

The round boxes of the Punjab are distinguishable by the purple-coloured lac commonly used on them. The boxes of Rajasthan generally have a drab background, the decorations being mostly geometrical flower forms, in two colours, or two forms arranged rhythmically in alternate manner, a mode common in Indian decorative art. In Sind, the boxes may be simply etched or painted, especially with hunting scenes, natural-looking or conventionalised flowers, and are always varnished.

An important site of lac-turnery is Sankheda in the Baroda district of Bombay State, where the old processes are still followed with slight modifications. As common in the artisan world of India, the methods were closely guarded and would be passed on only from father to son. It is said that once the standard of the lac-turned articles produced here was so high that not before a man was at least forty years old was he considered fit enough to learn the art.

Beautifully turned and coloured toys, cradles, Indian style of furniture, etc., are produced at Sankheda. The method followed is slightly different from that explained above. The turned wooden articles are first coated with water colours to provide the groundwork. The designs are painted on with a mixture of powdered tin and liquid glue and the articles allowed to dry thoroughly. Then they are refitted on the lathe and coloured lac is applied to the articles while turning on the lathe. A lit charcoal brazier is kept near the lathe to keep the lac soft. The lac coat is now burnished with *akik* stone while the article is rotating. The glittering metallic design glowing through the thin coat of coloured lac, produces a very charming effect. The final polish is imparted by means of a *kevada* leaf and *til* (gingeli or sesame) oil.

INDIAN PAPIER MACHÉ AND GESSO WORK

It has been said that the papier maché articles — the *kari-kalamdari* work — of the Kashmir craftsmen reveal their true artistic ingenuity. In the bazaars of Srinagar, powder boxes, bowls, ash trays, tobacco jars, lamp stands, trays, pen sets, finger bowls, toilet sets, candlestick stands, matchbox covers, etc., painted artistically with floral and other designs, attract the eye, and are sent for sale not only to other parts of India but are also exported abroad to a limited extent.

This was a flourishing industry in Mughal times, the finest articles coming from Kashmir which also supplied the best quality paper — its silky texture and glossy surface having been found very suitable for miniature painting in which the Mughals excelled and for the writing of important state documents.

Today, this art-craft has sadly deteriorated, trying to meet the competition and demands of commerce. The Kashmiris still possess their ancient skill and artistic instinct, but they too have to live. As Sir Walter Lawrence has said, "The surroundings of the Kashmir artisans are miserable and squalid, and it is sad to contrast the beauty of the art work with the ugliness of the workmen's lives."

The true papier maché work of Kashmir differs from that of Europe in that the paper is never fully pulped. It is softened by means of water and pasted on the mould, layer by layer, till the desired thickness is achieved. While still in a moist state — the article is kept wrapped in wet cotton cloth — it is covered with a thin layer of plaster of paris mixed with glue. It is next smoothed and burnished to a fine finish with a wet stone and the ground colour or *zamin* is applied.

The ground is painted either in colour or as in the better articles with gold or tin-foil, pounded and mixed with liquid glue. In the case of tin-foil it is burnished with a piece of agate after drying. Next, the surface is lightly rubbed with the finger coated with a little amber varnish, and before the varnish has set, fine verdigris powder is applied to give a greenish tint to the metallic background. To give a reddish tinge, a preparation of lac is used. In the case of coloured *zamins,* black, white, blue, rose, green, violet, brown, almond colour, and pistachio-nut green are the most popular.

It must be noted that only slow drying of the articles is used, no heat ever being applied. On the dry *zamin* the final design is painted on in water colours and the surface finally varnished with a very pure and transparent glaze made of copal dissolved in turpentine, never in oil like many of the Western copal varnishes. In olden days the best articles were made with a very thin sheepskin applied on the papier maché.

The colours used to be prepared from raw materials obtained locally or from other places. The ingredients were placed in a bag with a little water and pounded to a smooth paste. The latter was then dried over a charcoal fire and finally mixed with amber varnish, immersed in water and vigorously stirred. This was repeated, each time the water being poured out into a clean vessel, the very fine colour particles allowed to settle down, and the clear water on top carefully decanted off. The actual painting used to be done with brushes made of hair from the wild goat that also yields the famous *pashmina* wool of the finest Kashmir shawls.

Unfortunately, today very little of the true papier maché work is turned out in Kashmir. Most of the cheaper articles are made of light and inferior wood or wood-pulp with the designs painted on a pale ground and thickly varnished. Sometimes, the wooden article may be given a previous thin coat of paper pulp, but even this is not always done. This imitation ware can generally be told by the higher specific gravity and the slightly ringing tone emitted when tapped.

Nowadays, a modified method is also practised. After several layers of paper have been pasted on the mould, a thick layer of paper pulp mixed with starch is applied. Then come a few more layers of paper, the paper pulp again, and so on. This enables the craftsman to build up to the required thickness in a shorter time and with much less labour.

As in most of the Kashmir decorative arts, the Shawl and the minute Rose designs, both of ancient lineage, are very popular. The different designs, most of them of fairly recent origin, are as follows :

Arabesque : This is in gold, generally rendered on dull brown or a drab grey or buff background.

Handkerchief Pattern : This is not very common these days, but when seen is like the red and orange embroidered handkerchiefs of Kashmir, Chamba and the Kulu valley — really meant to be used as head coverings or shawls. Human figures, mythological subjects, and hunting scenes are depicted.

Modern Design : These are mostly in pale tones and realistic in treatment, the colours being white, pale blue, pink, and gold, the background with little previous treatment.

Rose Pattern : This is one of the finest, consisting of small sprays of roses, and other flowers, as well as tiny birds, all arranged on the ground in definite schemes of shape and colour. The modern Rose Design however is not as fine and consists mostly of separate bunches of flowers sprinkled here and there, in a bright display of colour undoubtedly, but without true artistic feeling. The flowers most commonly depicted are the tulip, rose, anemone, hyacinth, flowers with which the Kashmiri craftsmen could not possibly be familiar, and this points to a foreign trade influence,

the designs probably having been adapted from Western work.

Shawl Pattern : This also is an old design, and one of the finest. The groundwork is mostly white or of a pale shade, and the design painted lightly in water colours.

White and Gold Pattern : The background is a cream-white, with scroll work in gold and a border in bright colours with pale blue predominating.

Yarkand Pattern : The background here is always dark, the design consisting of rosettes in gold arranged spiral-wise, radiating from a large number of separate centres arranged all over the ground. White flowers may be painted on the gold scroll work. This is a really beautiful pattern and it is a pity that it is not to be seen too often these days, probably due to its intricacy demanding more time than the present-day craftsman is prepared to spend on any one article.

Mention is necessary of the papier maché masks and toys made in Jaipur and certain other parts of Rajasthan, particularly during the last century. Regarding them, Dr. Hendley says :

"For many years past miracle plays, representing the appearance of the Man-lion (Narsinha) and the Boar (Varaha) incarnations of Vishnu, have been represented in Jaipur in the beginning of summer. There are several men who devote themselves to preparing masks in papier maché of the principal as well as the subordinate characters . . . Besides complete figures, masks are made which are worn by the men and boys who represent the minor deities, and even animals who assist at the ceremony. With the aid of painted cloth and leather, excellent models of elephants and camels are also produced, which can be moved about in the same way as the hobby horses of old English fairs. The faces are cleverly painted. Birds, reptiles, and beasts of all kinds are also well modelled and coloured."

For making the toys, the paper pulp mixed with glue, wood ashes, etc., and kneaded to a clay-like consistency is thinly applied to a hollow clay split-mould of the toy to be made. When almost dry, the papier maché figure is removed from the mould and the two halves carefully joined together. The legs, tails and other appendages, hand-modelled, are now applied. The figures are next coated with plaster of paris, painted and varnished.

The very realistic, and often life-size, human and animal figures made of papier maché at Tanjore and some other places in the south also deserve mention.

At the time of writing, the papier maché small-scale industry has made great strides in certain parts of Madhya Pradesh. The use of paper for the making of small utility articles like trays, boxes, baskets, etc., was not unknown here, but the articles produced were always for personal use and no effort was formerly made to commercialise the craft to any great extent.

Paper was first used by the potters of Gwalior as a help in their production of cheap village toys. Paper pulp is used with the clay to make the articles not only lighter in weight but also more durable and less fragile.

Wet paper, mostly waste, is beaten to a smooth pulp by hand and then mixed with suitable clay available locally. This mixture is then once again beaten and kneaded with the addition of a litttle water to achieve the necessary workable consistency.

The proportion of clay and paper pulp used depends upon the quality of the article made. It can be made so flexible that it can be removed from the most complicated moulds with perfect ease. The moulds used for making the toys or other articles, mostly figures both human and animal, are made of plaster of paris or a hard form of clay. The paper pulp prepared as explained above is rolled into thin sheets almost like pastry dough, and this sheet is then carefully pressed into the cut mould by hand, a process involving delicacy of touch and a certain amount of skill. The moulds with the paper pulp pressed in are then allowed to dry naturally when the papier maché articles are removed from them. They are of course not perfect at this stage, showing a certain amount of roughness. Therefore, the articles are next dipped into a thin mixture of paper pulp and white clay to give them a smooth and uniform surface. They are now painted, both water and oil colours being used. But oil colours are preferred these days because of their greater covering power and their ability to render the objects more or less moisture-proof.

The Dancing Dolls of South India certainly deserve mention. Made of papier maché and suitably and brightly coloured and decorated in dance costumes, they are made in four separate parts : the circular base with the legs attached ; the lower part of the body from the waist downward ; the upper body and arms ; and the head. Each part is delicately balanced on the other on wire pivots, so that the slightest vibration sets the whole doll "dancing" in graceful rhythm. Even if unsuitable as toys, these dolls make elegant and decorative pieces for the home.

PAINTED PLASTER AND GESSO WORK

As a homecraft, gesso work is very popular in Europe and America, the material used being a mixture of whiting and glue with sometimes the addition of certain other substances in small quantities like plaster of paris, etc. This gesso, at a consistency that allows it to flow freely from a brush, is used to form a raised design on the wooden, papier maché, or metal object. In some cases, thin gesso may be first brushed all over the surface, and a thicker form used for the decoration. A step further is the use of a thick clayey-mixture which may be moulded by hand into different decorations like flowers, etc., and then stuck on the gesso-ed surface. The article is now painted and varnished. This, in brief, is the process as commonly followed in European countries.

Gesso work is sometimes called *munbathi* in India when the design is raised fairly high, and *lajwardi* when it is in shallow relief. The ornament or design is

coloured and the article finally varnished to preserve the surface.

The actual "gesso" used differs in different parts of the country, and according to Sir George Watt, it is often a paint made from finely powdered brick-dust and water, or plaster of paris thinly mixed with water, or even a powder made from pulverised shells or simple chalk mixed to the proper consistency with a gluey substance like gum or the pulp of the bael fruit (*Aegle marmelos*). Sometimes a paste of the *dal* mixed with fine lime is used. The gesso decoration may be further carved and finally painted. We are told, "They are usually applied as paint with a brush, at other times moulded with the fingers and in some few instances coloured dry starch is dusted through stencil paper on to a glued surface until the pattern is built up in that manner." This is very much like the process used in many countries of the West, though the actual composition of the gesso may differ.

Instead of painting with water or oil colours, gold leaf may be applied over the whole surface, including the raised gesso decoration and made to adhere by means of size or varnish. Or the raised decoration may be further painted to provide a bright and coloured design on a golden field ; or again, the background may be coloured and the design left covered in gold leaf.

Bikaner in Rajasthan has always been an important centre of gesso work of a very superior kind. The beautiful audience hall is almost exclusively in this art, the woodwork being ornamented with gesso. Sir George Watt reports : "The suggestion was made to adopt the gesso work of Bikaner to some form or shape that might commend itself to European purchasers. For this purpose were accepted the characteristic and interesting oil bottles of Bikaner (*kopis*) that are made out of the inner layer of the camel skin. In consequence gesso painted and gilded *kopis* suddenly appeared in the shops of Indian Art dealers and rapidly became constant features of these sources."*

Lime plaster or *chunam* work has also been used as decorative motifs in architecture, chiefly in Rajasthan and especially at Jaipur, Bikaner, and Amber.

Chunam work may be of two kinds : in one type, the decoration is slightly raised and generally made in separate plaques, and finally fastened to the walls. The designs are mostly floral or arabesque diapers, the whole often being coated with a thin wash of plaster mixed with mica flakes, giving a cool and charming effect. This is the kind of *chunam* work seen in the Sukh Nivas, "The Hall of Pleasure," in the ancient city of Amber, now in ruins.†

In the second and more elaborate style, the plaster is cut into the shapes of flowers, etc., and placed between sheets of coloured glass in windows. If fixed to the wall, the background is always kept dark or the plaster-glass decoration placed over coloured foils. The raised flowers and other decorations may also sometimes be coloured and even gilded and fixed on a white ground.

Thomas Hendley has recorded the process of *chunam* work in Rajasthan. Pure stone lime is dissolved in water and then strained. The sediment left in the sieve is ground and mixed with pulverized white marble and water. This paste is applied on the wall, which also is previously moistened with water, with a wooden spatula, and rubbed smooth with a polished stone. A second coating of the paste is then given and polished as before. The surface is now further polished with agates. If the background is to remain white, the surface is washed with water containing grated cocoanut, and rubbed dry with a soft cloth.

The design is drawn on the prepared wall with charcoal or powdered charcoal pounced on it through a perforated stencil. The colouring of the design follows, only mineral pigments being suitable as they alone can resist the action of the lime. The painting is done rapidly while the plaster-coated surface is still moist. As a last step, the wall may be again washed with cocoanut water and polished with agates.

If it is desired to use oil colours for painting, the wall surface is coated with linseed oil which is allowed to penetrate into the plaster and thoroughly dry. This process is repeated as often as necessary, that is, till the wall surface will absorb no more of the oil.

According to the authority mentioned above, "It is desirable to mention that molasses, *gur*, or sugared water, has been employed from time immemorial to bind and harden the plaster . . . In some instances powdered pearls, egg shells, and such like articles have been added to the last coat of plaster — in the case of the pearls, a piece of ostentation which must be rare."

Another form of decoration is the setting of convex pieces of mirror glass in the plaster to form patterns, called *pachikari-ka-kam* according to Thomas Hendley. Small glass spheres are first blown, molten zinc poured into them and the spheres rotated quickly to cover the entire inner surfaces with the metal. They are then broken up, the pieces carefully trimmed and used for setting in the wet plaster. The borders may then be coloured and even further decorated with foil.

In Jaipur, the use of mirrors was common, "either in silvered glass or talc, in some cases backed with discs of plated copper or with coloured pieces of metal foil . . . The pieces of glass are often set in gilt or silver borders, arranged in various arabesque patterns or in the forms of trees and flowers . . . Another mode of decoration prevalent in Jaipur is that with painted glass, something like the Venetian glass mosaic. The design is cut out of a sheet of plaster or metal, and behind the openings thus formed pieces of coloured glass are arranged so as to produce a picture. A second piece of plaster cut in the same way as the first

* This holds true only for the early years of the present century.
† The Sukh Nivas is in the palace which was begun by Man Singh I (A.D. 1600) and probably completed by Jai Singh I.

is then placed behind, and the whole cemented together . . . This has a rich effect when the sun shines through the panel." (T. N. Mukharji.) Examples of this work can be seen in the underground bathrooms at Amber. To this Mr. Kipling adds :

"Sometimes the mirrors are discs separately framed, but in another style small pieces of mirror are framed in arabesque scrolls wrought with great delicacy in white plaster. The mirrors are blown in their globes, which are silvered on the inside and then broken into fragments. There are numerous examples of this fantastic and beautiful but laborious form of decoration in the old buildings of the Panjab."

In the state of Tonk of Pre-Independence days, and now a part of Rajasthan, shields made of thick hide and painted with coloured gesso used to be made. Strangely enough, the designs on these shields show a definite Chinese or Japanese influence, as do many of the designs of Rajasthan. The gesso decoration is painted and finally varnished with copal to give finish and durability to the shields.

In Hyderabad in Andhra Pradesh, trays, fans, and plates are made and decorated in varnished gesso. The background is generally a rich green, the flowers crimson with added golden lines and stalks. The design often radiates from a central point of focus to form wedges round it. The decoration of the fans mostly consists of peacocks and other animals interspersed with foliage.

Some regions of the south are also famous for painted and varnished gesso work, even large articles of furniture being thus decorated. The designs are rather similar to those of Hyderabad, except that in the South Indian work, a greater number of animals are to be seen ; we find parrots boldly and gracefully delineated in many different attitudes, as well as peacocks not so well drawn. Sometimes, the groundwork is left white and not painted green as in the gesso work of Hyderabad and Raichur.

A large number of plaques and figures in the round are cast in plaster of paris these days. But this craft is neither Indian nor traditional, and lacking all artistic merit, deserves no further discussion here.

INDIAN POTTERY, CERAMICS AND GLASSWARE

"Truest to nature, in the directness and simplicity of its forms, and their adaptation to use, and purest in art, of all its homely and sumptuary handicrafts is the pottery of India ; the unglazed rude earthenware, red, brown, yellow, or grey, made in every village, and the historical glazed earthenware of Madura, Sindh, and the Panjab." Thus writes Sir George Birdwood eulogistically, and this is praise indeed. Hindu mythology has a naive but interesting story to tell about the creation of the first pot. Let us relate it in the words of T. N. Mukharji :

"The want of a pot was felt almost from the very beginning of things — since there was a keeper and since there was anything to keep. The necessity for such a thing was felt even in the very nebulous stage of the world, when the gods and demons combined to churn the ocean for its wealth. That fierce churning yielded many precious things, among which was the nectar to make the gods immortal for all time. Something was now needed to hold the nectar. Viswakarma, the celestial artificer, pondered and took out from each of the assembled gods a bit of the *Kala* or spirit with which their bodies are made, and moulded it into a pot, perhaps the first of its kind in the world. From *Kala* came the Sanskrit word *Kalasa* or water-pot."

But a single pot could not satisfy the needs of the world. Pots were necessary for living and it was thought desirable to create an organised caste of potters with the exclusive privilege to make the pots. This came about when the great god Siva at last decided to do something for the happiness of the world. On the occasion of his marriage to Sati, the Primordial Energy, there was no pot available for use during the wedding ceremonies. So Siva took a bead from his necklace and from it he created a Man ; and from another, he created a Woman, and ordered that they should forthwith make a *kumbha* or water-pot. Thus was born the caste of the *kumbhars* or potters, often called *kumbhars* in the north and *kumars* in Bengal. Even today, the potters call themselves Rudrapal, the name of the first potter created by Siva, and consider themselves under his sacred guidance. They "place his image on the middle of their wheel, leave it unturned for the whole of the first month of the Bengali year, and finally on the last day they worship the idol and throw it into the water. Nor are they unmindful of the originator of their craft, the god Viswakarma, who made the first pot of the world to keep the nectar in."

The craft of the potter is certainly of very ancient lineage in India. Its origin can be traced way back to the Indus Valley civilization, a civilization whose art-crafts show not so much primitiveness as an aesthetic decadence, proving beyond doubt that even in those very early days she owned a proud and still older inheritance. Examination of the pottery of Mohenjo-Daro fills one with wonder, so varied are the shapes, so beautiful the workmanship, so rich the red and black designs. And even today, in every village in the country, the potter can be seen sitting by his primitive wheel, "moulding the swift revolving clay by the natural curves of his hands," turning out the daily requisites of village life — the pots and jars, the bowls and water pitchers. His is the traditional figure enshrined in Indian poetry and folk-lore, for it is he who in his humble way supplies the vast variety of the day's requisites. The small *kulhars* or cups in which tea is served, and the graceful, long-necked *surahis* for keeping the water cool in the heat of the summer, large jars for storing grain and spices, the *kalasas* of every conceivable size and shape, the glazed *martbans* for the pickles and preserves that delight every Indian household, the *kapalas* or cooking pots, *lotas* and *patras* (plates).

At certain places like Alwar, Bhawalpur and Gujranwalla, pottery is made of such a thin layer of clay that it is called *kagazi*, "like paper." In Aligarh, the pottery is decorated with patterns moulded on the surface before the final firing, while in other places the designs are carved or incised on the surface while it is half-dry ; but the usual practice is to cut the lines of the pattern in the plastic clay while it is still revolving on the simple potter's wheel, or imprinted on the plastic surface by means of wooden stamps. But more about the technique and the styles later.

The famous black pottery comes from Madurai, Ratnagiri, and Azamgarh, and painted ceramics from Lucknow, Kotah, Salem, and Jullundar. The glazed flower-bowls, vases, dishes, pitchers, etc., mostly in a deep greenish-blue colour and with the pattern modelled above the surface are the products of Khurja and Rampur. Persian influence can be seen in the potter's craft of Jaipur where is produced pottery with an admixture of green leaves and yellow and brown flowers. And, of course, there is Kashmir with its vast variety of all kinds of ceramic wares, some in a rich jade green.

Painted pottery is also common in India and it is of two kinds. One is stained or painted before firing, while the other is first fired and hardened and then stained or lacquered. The produce of the potters of Madurai generally consist of water receptacles with a rounded bowl and a long vertical neck. The lower bowl part is pierced so that air can circulate round an inner porous vessel, thus cooling the water by evaporation. The neck also may be fretted and the pottery glazed, either a rich golden brown or a dark green.

The pottery of Burhanpur is not only very ancient but is deservedly popular, its glazed brown ground

An early example of Indian coloured *pietra dura* work on the wall of the old palace at Udaipur, Rajasthan.
(*Photo : A. S. Lakdawala*)

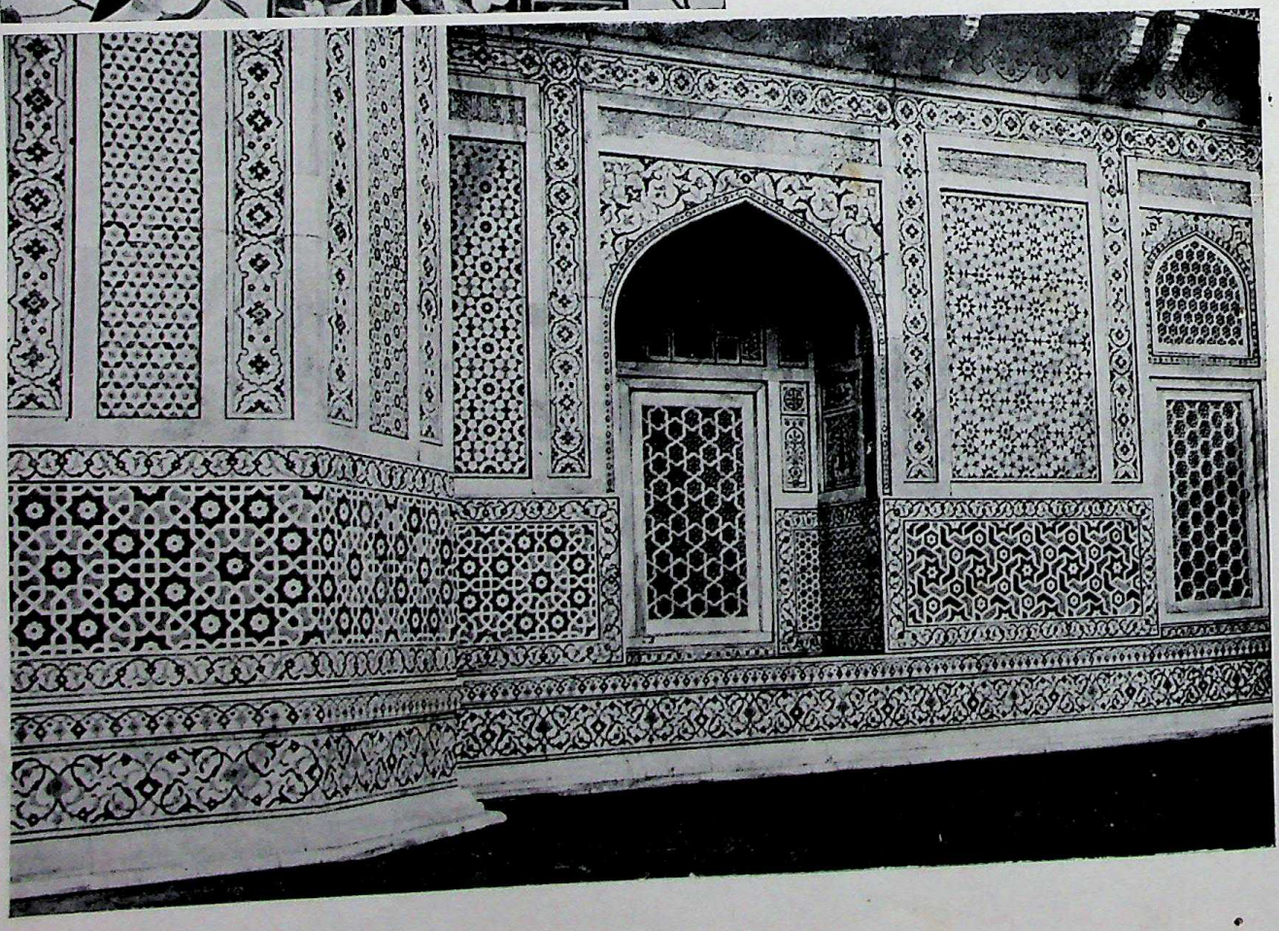
Kashi tile work in various colours of Chini-ka-Rauza, Agra, the burial place of the poet Afzal Khan who died in A.D. 1639. The tiles, principally in blues, greens, orange, vermilion, crimson, etc., are set in plaster an inch thick.
(*Copyright reserved by Department of Archaeology, Government of India*)

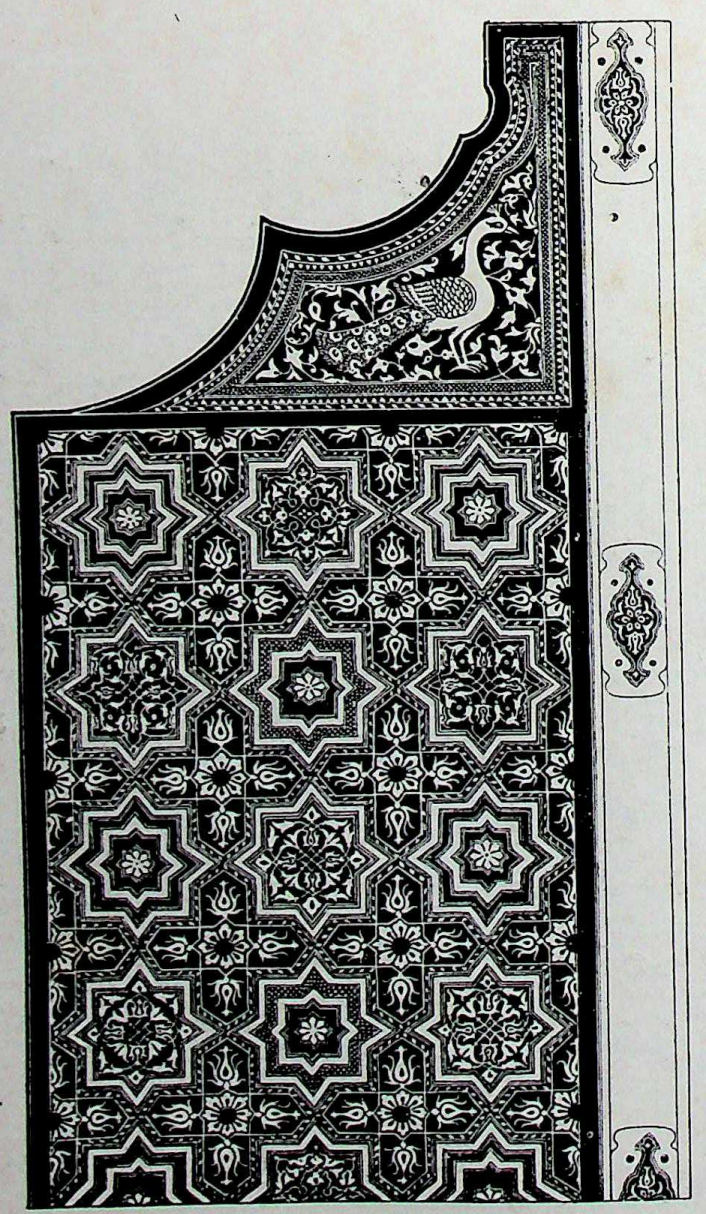
Marble inlay work from the throne in Diwani-i-am, Red Fort, Delhi.

(*Photo : W. H. Eagle*)

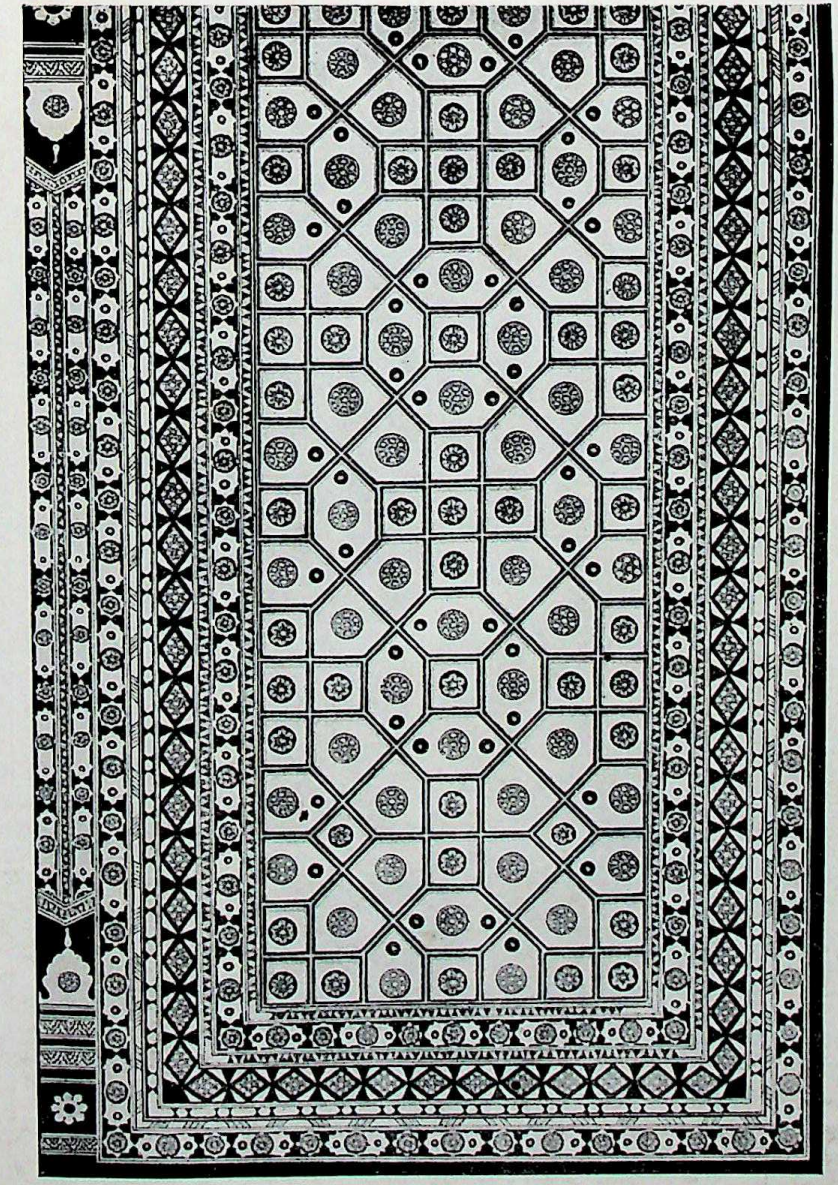
Stone mosaic work of the tomb of Itmad-ud-Daulah, Agra, built by Nur Jahan for her father, Mirza Ghiyas Beg.

(*Photo : A. L. Syed*)



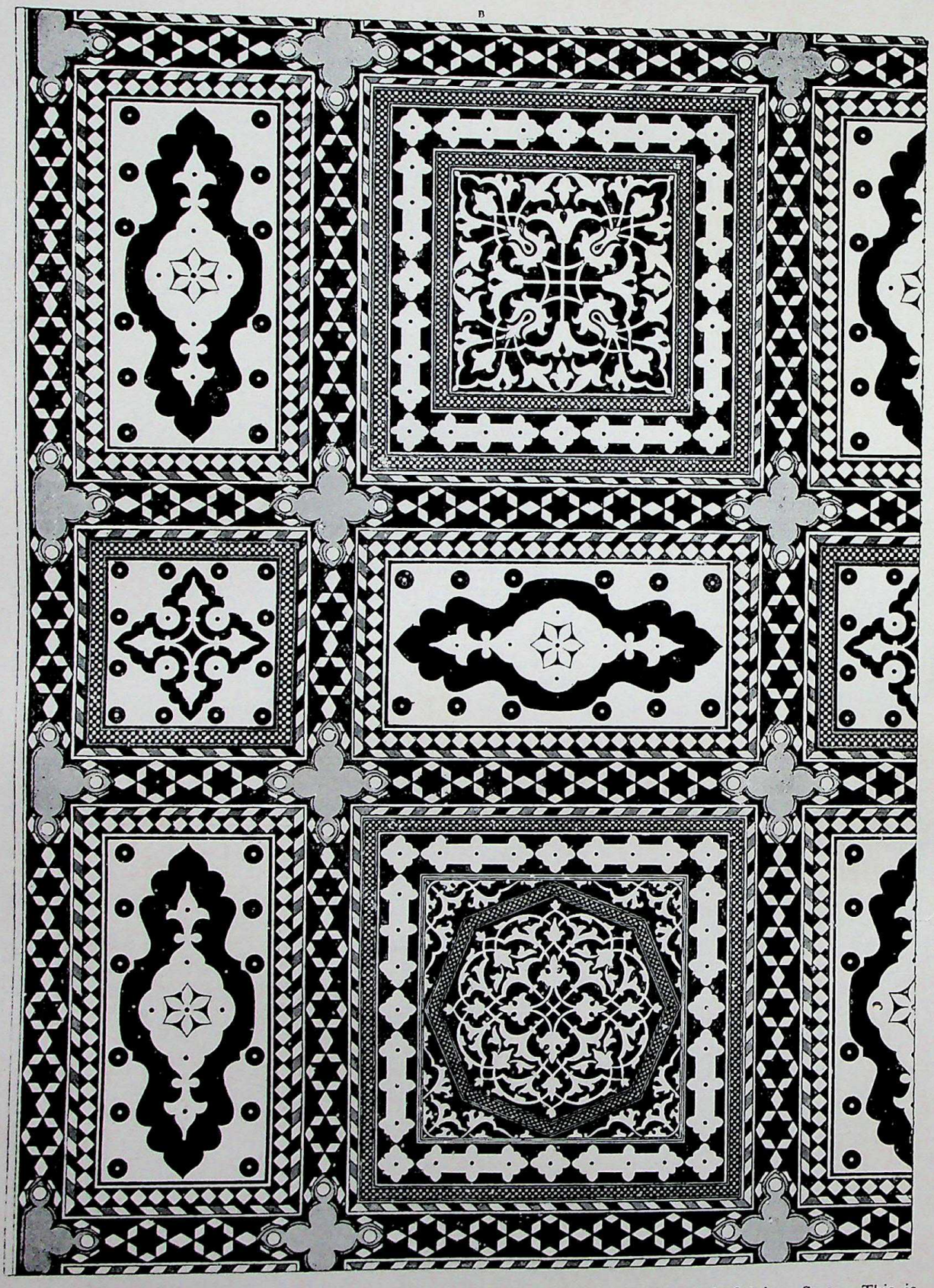


Inlaid door from zenana in the ancient city of Amber, constructed probably during the reign of Shah Jahan. The small pieces of ivory and ebony are attached by tiny metal pins, and so, in a way, this is not true inlaying.



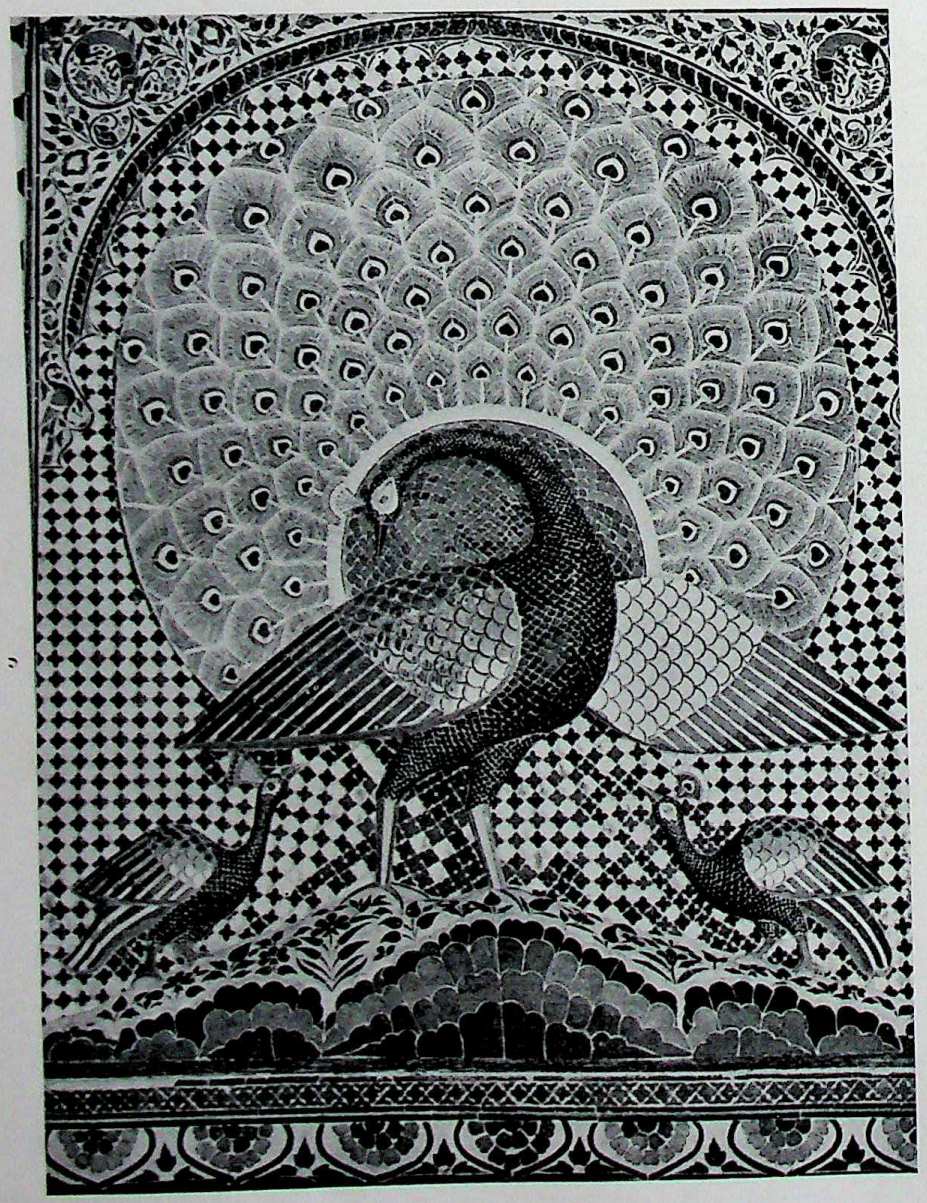
Inlaid door from the Sukh Niwas — "Hall of Pleasure" in the old palace at Amber. Small pieces of ivory of different colours are inserted into little frames in the wood.

(From *The Journal of Indian Art and Industry*)



Door in ebony wood with ivory inlay work, from the old palace in Amber, the old capital of Jaipur State. This is one of the finest examples of ivory inlay work in architecture. Some of the ivory pieces have been dyed yellow.

(From *Jeypore Portfolio of Architectural Details*)

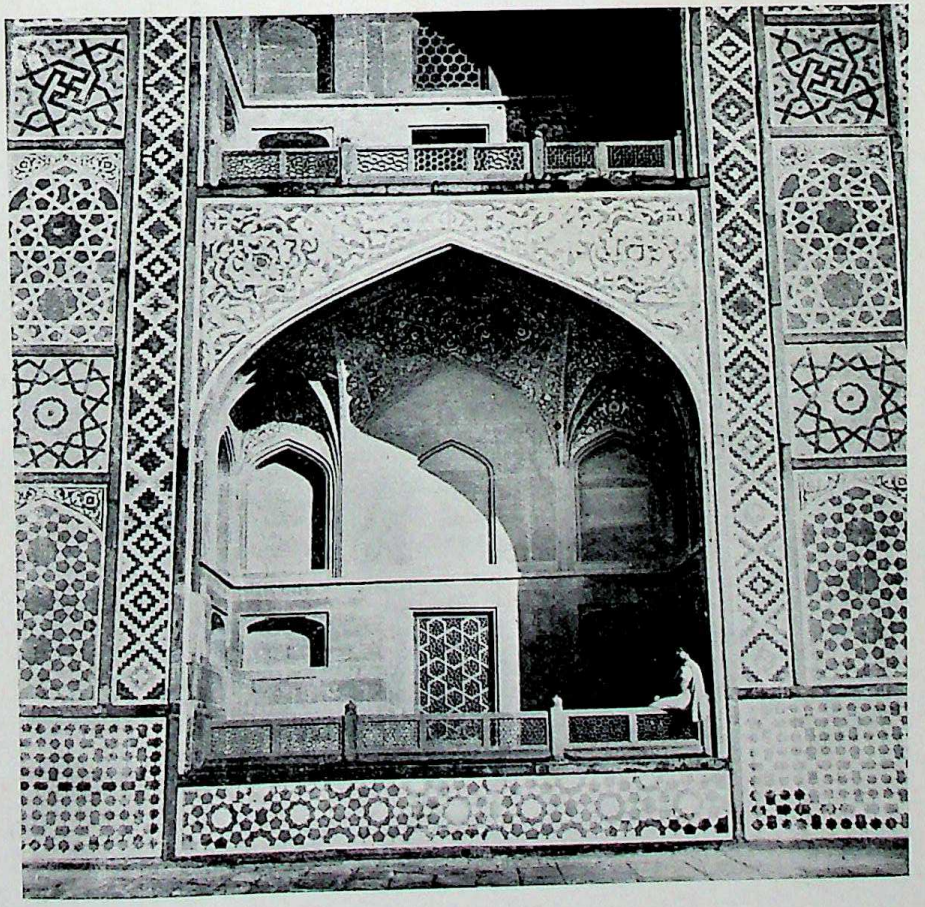


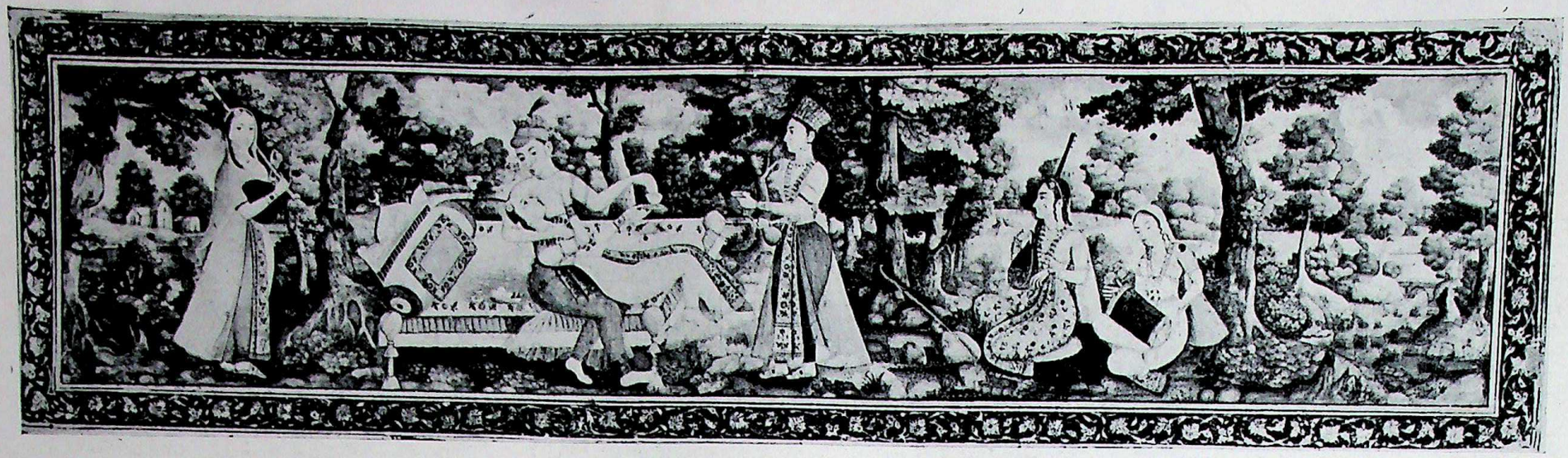
An enamelled peacock in lapis lazuli and other stones on the wall of a courtyard in Udaipur Palace, in Rajasthan. The bird is about 2½ ft. high and is set in a panel of ornamental foliage. Inlay was a popular form of decoration of Rajput palaces, and this is one of the most lavish examples of the craft.

(*Photo : Vac Syndicate*)

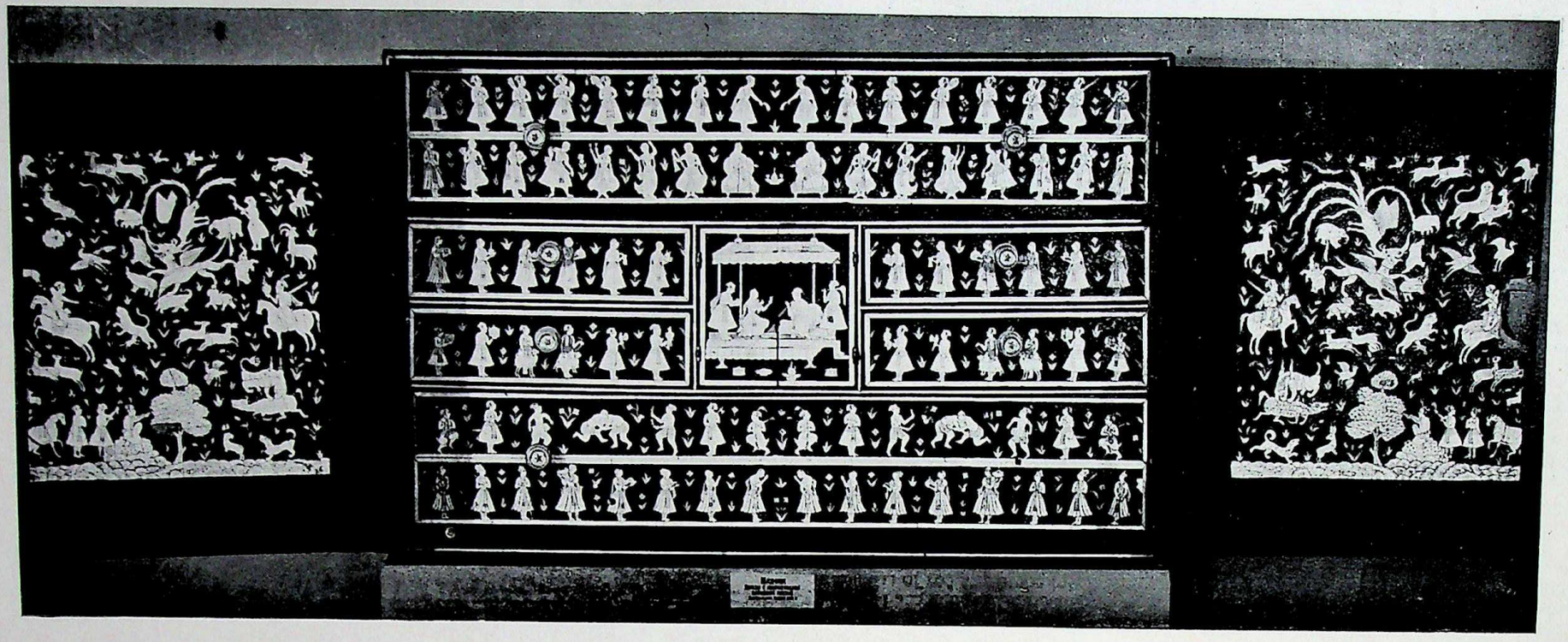
Facade of the left side of entrance to Akbar's tomb at Sikandra, near Agra. It is of red sandstone inlaid with white marble in varying designs chiefly based on the polygon.

(*Photo : M. V. Vijayakar*)



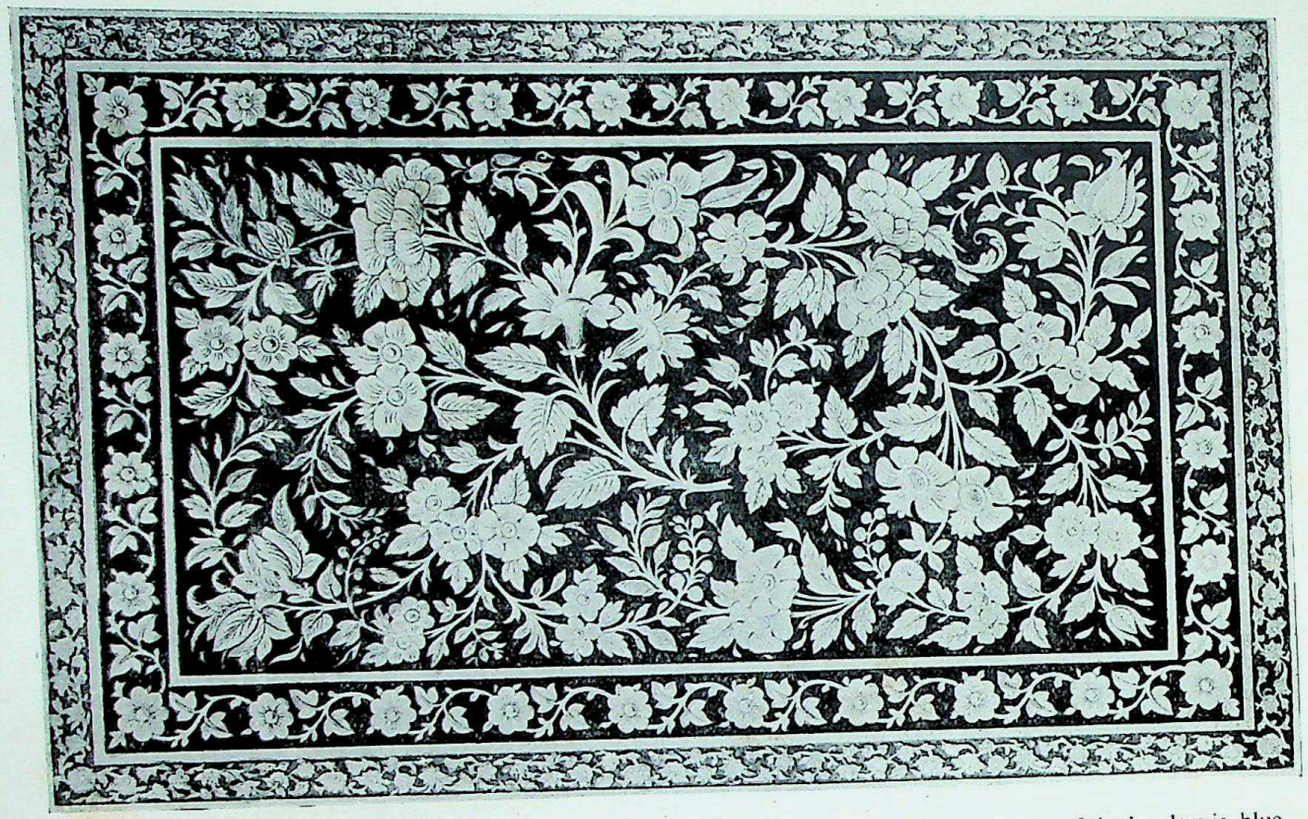


A Mughal garden scene painted on top of a lacquered pen box.
(*By Courtesy of State Museum of Oriental Culture, U.S.S.R.*)



Book case made of ebony wood and inlaid with ivory. Delhi, 17th. Century.
(*By Courtesy of State Hermitage, U.S.S.R.*)

A fine example of Indian coloured lacquer work on a box cover. Probably Kashmir work, 17th-18th Century.
(By Courtesy of Oriental Institute of Uzbek S.S.R. Academy of Science, U.S.S.R.)



The top of a lacquered box with golden design on a black background. The ground colour of the borders is blue.
(From *The Industrial Arts of the Nineteenth Century*, by M. Digby Wyatt)

A skilled lacquer worker of Kashmir.
(Photo : S. G. Pradhan)

beautifully decorated with light yellow lines. The glazed ceramics of the south — Vellore, North Arcot, Kumbakonam — are also justly famous, the glaze being either a fine transparent emerald green or a deep dark brown.

An industrial art so rich in its tradition deserves more extensive treatment than we have given above. Unglazed pottery is literally made everywhere in India and it would be inadvisable to attempt to enumerate even some of the places where it is made. But it is worth noting that the forms as used today are very similar, if not quite identical, to the representation of pottery to be seen in ancient Buddhist and Hindu sculptures and the wall-paintings of Ajanta. Though today very little Indian pottery is exported, that was not so during the closing years of the last century and fancy pottery especially designed to be sold outside the country was made in many places. For example, there was the red earthenware pottery of Hyderabad and Travancore, the red glazed wares of Dinapur, the black and silvery pottery of Azamgarh and some other parts of Bengal, painted pots and pans of Kotah in Rajasthan, the imitation bidri of Patna and Surat, the fretted unglazed pottery of Madurai — in all of which an artistic effect was consciously aimed at to please the undiscerning eye, though not always with success.

Indian pottery may be glazed or unglazed. While the village *kumbhar,* whether Hindu or Mohammedan, produces only unglazed wares, the *kashigar* makes the more artistic varieties, often glazed. Very often, the latter buys ready-made and sun-dried vessels from the *kumbhars* and carries out only the later process of decoration.

At the International Exhibition of 1862, there were many fine examples of Indian pottery — the open-work gilt pottery from Allahabad with a thin blackish body ; coloured and gilt examples from Lahore ; black pottery with inlaid silver ornamentation from Patna ; dark brown, beautifully glazed ware from Madras, and some pieces from Lucknow, decorated with a pattern in a bluish-green colour on a cream ground. Mr. Aston who helped in the organising of this Exhibition wrote some notes on the occasion, and the following extract is of interest :

"All the pottery of India may be classed under the head of soft, porous earthenware. The clay undergoes but little preparation, being merely moistened with water for a night, and then kneaded with the hands or feet for a short time before use. Most of the clays used by the natives for making the common red porous earthenware melt into a grey spongy slag, at a temperature required for glazing ; the reason being, that they are not sufficiently dense. The brown clays are the most abundant ; then the yellow, drab, blue, grey, and white. On exposure to heat, all these undergo certain changes, and, as a general rule, become darker in firing, according to the degree of heat employed. Whitish clays, if not pure, burn to a cream-colour, yellow to buff-colour, yellow ochrey clays to red, and brown and black clays to a deep red, purple, or black. As one great object is to have porous vessels for cooling water, the ordinary clays answer sufficiently well for this purpose."

The fine black or the black and silvery pottery of Azamgarh has already been mentioned. Its rich dark shade is obtained by baking the articles with mustard-oil seed cake. The silvery ornamentation is produced by rubbing an amalgam of mercury and tin into the incised lines of the design, engraved in the clay after surface baking. Though the superior black colouration of the pottery of Azamgarh has a distinct charm, the same cannot always be said of its inferior designs and its feeble and unimaginative forms.

Azamgarh is not the only place in India where the rich black pottery is made. It is also produced at Khulna and Sehwan in East Bengal, the Ratnagiri district of Bombay State, Aligarh in Uttar Pradesh, Madurai in the south, and even in some parts of Burma. Everywhere it seems that more or less a similar method is used to produce the black colour : by the confinement of the smoke during the firing of the pottery and the addition of certain materials to the kiln that would produce considerable smoke. In Azamgarh and in East Bengal, the clay vessels are fired within a closed container that is placed in the kiln and in which some damp straw, oil-cake or cow-dung has also been introduced to produce smoke and soot. Before firing, the pottery is carefully polished and treated with a special preparation called *kabis,* consisting of a kind of fuller's earth called *piri matti,* fine powdered mango bark and *sajji matti,* a crude form of sodium carbonate. This together with the confined smoke produce the rich black colour of the clay on firing. A silvery-black colour is obtained by the addition of tin and zinc.

In other parts of the country the place of the powdered mango bark is taken by other substances, all claimed to give a quality of polish to the clay. In Madhya Pradesh, especially at Seoni, the bark of the *tensa* tree is used ; the leaves of the bamboo and of the *vasaka* (*Adhatoda vasica*) are also claimed to form a superior kind of *kabis.* Sir George Watt tells us that in Hoshiarpur the glaze consists of the resin of *Pinus longifolia* dissolved in turpentine and mustard oil.

Rather similar is the Sehwan pottery of Bengal. The colour is either black or white, and after firing, is decorated by hand with silvery patterns produced by etching the designs and rubbing into the lines an amalgam of mercury and tin. In shape, it is more in the European style and was perhaps originally produced to suit the taste of foreigners for whom are made cups and saucers, plates, flower-vases, jugs, etc. The designs are also very often European, the shape of some of the Sehwan flower-vases resembling those of ancient Greece in style and form.

As far as unglazed ceramics are concerned, the colours imparted to the whole vessel or to the decorative areas are by means of special clays or coloured earths like chalk or talc (*abrak*), yellow ochre (*geru*),

etc., which take the place of the slip in glazed pottery and which is applied under the final glaze of the latter. In painted or stained pottery no flux like borax or lead oxides are used with the colouring matter and the heat used for firing is not high enough to fuse the materials. In short, the colouring is done before or after the actual firing, and though the heat fixes the colours, there is no formation of a glaze.

In the Bengal painted pottery, the red colour used is red lead, yellow is arsenic, green is a mixture of yellow arsenic and indigo, black is produced with lamp-black made from charred rice seeds. These colours are mixed with a mucilage prepared from tamarind seeds or the gum of the *bael* (*Aegle marmelos*) before application.

After the colours have dried, the vessels are varnished with *garjan* (*Diplococus* sp.) wood oil, or with the white of a duck's egg. The painting is crude and inartistic in Bengal, except perhaps at Gaya where the painters used to exhibit some aesthetic feelings, the ground being red, with floral patterns in green and yellow interspersed with the figures of birds and animals.

The large jars made in Bengal and known there as *kolas* may be either plain red or black in colour. Some of these are so finely polished that they appear to be glazed. But they are not. The gloss is produced by rubbing the surface of the pottery before baking with certain seeds or a gum-like juice, to produce a fine polish that remains glossy even after the article has been fired.

If the pottery of Azamgarh is poor in form and cheap in its decorative values and that of Bengal crudely painted, just the opposite is true of that of the Punjab, both East and West, and of Sind. The latter and West Punjab are now in Pakistan but once formed integral parts of undivided India before the days of partition. These ceramic articles are marked by simplicity, symmetry and grace of form and the directness and aesthetic tone of their ornamentation, and of course, the beauty of their rich colouring. If "the first thing to be desired in pottery is beauty of form, tha perfect symmetry and purity of outline which is 'When unadorn'd, adorn'd the most'" then we have it in the craft of the master-potters of the Punjab and Sind Here we find, as in most of the best Indian pottery, "the reverent subjection of color and ornamentation to form, and it is in attaining this result that the Indian potter has shewn the true artistic feeling and skill of all Indian workmasters in his handiwork. The correlation of his forms, colors, and details of ornamentation is perfect, and without seeming premeditation, as if his work were rather a creation of nature than of art; and this is recognised, even in the most homely objects, as the highest achievement of artifice. The great secret of his mastery is the almost intuitive habit of the natives of India of representing natura objects in decoration in a strictly conventional manner; that is to say, symmetrically, and without shadow. In this way the outline of the form ornamented is neve broken. The decoration is kept in subordination to the form also by the monotonous repetition of the design applied to it, or by the simple alteration of two or, at the most, three designs. Also, never more than two or three colors are used, and when three colors are used, as a rule, two of them are merely lighter and darker shades of the same color. It is thus that the Indian potter maintains inviolate the integrity of form and harmony of coloring, and the perfect unity of purpose and homogeneity of effect of all his work." (Sir George Birdwood.)

It is believed that the pottery of the Punjab and Sind dates to the conquest of Jenghis (Chinjiz) Khan, A D. 1206-1227, and bears the cultural influence of ancient Babylon and Ninevah. It generally consists of water bottles, jars, plates, dishes, bowls, cups, tiles, dome-tops, pierced windows and other architectural accessories, as well as many articles of domestic use. In shape, the jars, vases and bowls are often egg-shaped, glazed in a transparent turquoise shade, or in dark green, golden brown or a rich royal purple. The design most used is the knop and flower pattern, either simply painted round the edge on a white ground, or alternating with coloured or uncoloured areas. Sometimes a diaper is also used, the conventionalised lotus being popular, in a colour lighter than the ground shade.

Glazed pottery is as common in India and Pakistan as unglazed wares, some of the chief pottery-making centres in the two countries, which it must be remembered once formed part of one sub-continent, being Delhi, Lahore, Peshawar, Sialkot, Jullundar, Bikaner, Ajmer, Jaipur, Tatta, Multan, Kutch, Bulandshahr, the Bombay area, Jubbulpore, Allahabad, Lucknow, Mirzapore, Vellore, the Malabar region, Coorg, etc. A brief description of the different styles and types to be seen in glazed wares, whether they be of present-day India or Pakistan, should be of interest to the reader. This information is primarily based on the study of Sir George Watt, who was the Director of the Delhi Exhibition of 1902-1903.

The pottery of Peshawar is somewhat like the Italian enamelled majolica. The reddish clay is dressed with white earth, this slip consisting of chalk. It is then coated with the glaze chiefly consisting of lead oxide. If further ornamentation is required on this greenish white pottery, the design is drawn on the unburnt glaze with an "ink" made of manganese and the details filled in with a preparation of copper. Thus, if the design is floral, green leaves, outlined in brown are produced on the off-white body colour. Red, black and blue colours are also used. The favourite scheme is green and pink on a milky white.

The pottery of Delhi and Jaipur is peculiar in that it is not made of clay but of ground feldspar (*burbura*) mixed with starch or gum. Hence, the vessel cannot be shaped on the usual potter's wheel, but has to be moulded by hand. This type of pottery, called *kamchini,* apparently originated in Delhi itself under the potter Bhola, perhaps in competition with

the *martabans* imported into the country from Burma. The products of later years are mostly in pale shades of blue on a pure white granular body surface. Occasionally green tints are also used, but this is not very common.

In Jaipur pottery, two shades of blue — turquoise and cobalt — were and are used on a pure opaque white. In fairly recent times, a Persian influence seems to have become manifest and as mentioned before, inferior pottery with green leaves and yellow and brown flowers, began to be produced. "The articles are made in moulds and glazed with feldspar and starch," wrote T. H. Hendley about sixty years ago. "The colours chiefly employed are blue from oxide of cobalt, and green from oxide of copper . . . Some of the pottery is semi-translucent, and in addition to blue and green a few other colours have been sparingly employed, specially a canary yellow, a dark blue and brown for vases of one colour. Most of the best examples are hand-painted with conventional floral or arabesque patterns, and sometimes with figures of animals."

A more detailed description of the pottery of Jaipur is necessary on account of its excellent quality. But here we shall be primarily concerned with what has come to be known as Jaipur Pottery — a pottery of special manufacture that came into existence in 1866 with the founding of the Jaipur School of Art. The shapes of the vessels vary greatly, but are more or less of an ornamental character. According to Pandit Bisvesvarnath, who was the Head Potter at the school during the opening years of the present century, the materials used in the manufacture of the pottery are :

Quartz (obtained locally)	..	10 seers
Glass (*Kanch*)	..	1¼ seer
Borax (*Saji*)	..	⅛ seer
Gum (*Katira*)	..	¼ seer
Fuller's earth (*Multani matti*)		¼ seer

(A *seer* is equal to two pounds and two ounces.)

The ingredients mentioned above are pulverized to a fine powder and sifted through a wire-gauze sieve. This very fine powder is then placed in an earthen vessel, and sufficient water added to produce a soft paste which is then worked up into a mass like kneaded flour. Moulds are used for making the articles and these are filled with the above composition. The article may when dry be placed on a potter's wheel and the outer surface made quite smooth. The vessel is now coated with the glazing solution consisting of *kanch* ¼ seer and stone 1 seer, both reduced to a fine powder and mixed with wheat flour paste called *lehi*. Sufficient water is added to make this into a thick liquid with which the vessels are painted and subsequently allowed to dry in the sun.

Further ornamental designs are now painted on the prepared surface with a brush. If the areas not thus decorated are intended to have a rich turquoise (*phirozi*) colour, such areas are painted with a mixture of gum and copper oxide ; if not so treated, they remain white.

After all the work of decorating is complete, the second and final coat of glaze is given. This is different from the first glaze. A fine powder is made of the following :

Suhaqa (a kind of borax)	..	5 seers
Sindhur (vermilion)	..	2½ seers
Kanch (glass)	..	10 seers

These ingredients, finely pulverized, are melted in a crucible, and then allowed to cool and solidify. Broken into small pieces, these are passed through a crude mill to reduce them to a fine powder. The latter, mixed with wheat flour paste, forms a thick liquid and is used as the final glaze. The vessels are now ready for the final baking in a hot kiln ; they are allowed to cool in the kiln itself for about three days to avoid any sudden change of temperature and to "cure" them thoroughly.

Burhanpur in Madhya Pradesh also has a reputation for an ornamental glazed earthenware of a rich brown colour with decorations in light yellow lines. Very little of this kind of pottery was turned out in the past, and in all probability, is no longer produced.

Multan and Sind are both in Pakistan today. They always had a reputation for their glazed tiles, even before the manufacture of domestic pottery. The ancient architectural structures of Sind and nearby Baluchistan used to be of plain brick ornamented with these decorative tiles, some of the best examples being in the old tombs at Tatta. Other good examples will be seen in the tomb of Asaf Khan at Shahdhara, near Lahore, and some of the mosques and mausoleums round about Delhi. These tiles of Multan are really superb, but the same cannot be said of the Multan ceramics of today. The rich blue of the tiles has deteriorated and the designs and colours are relatively insipid and unimaginative.

When the craft of making decorative tiles was at its zenith, the colours included, apart from blues of various shades, fine greens, golden yellows, browns, rich orange, and rich purples.

The Multan art pottery is known as *kashigari*. The potters or *kashigars* do not make the vessels themselves but buy from the potters unglazed vessels made of good white clay. The surface is made smooth and all cracks carefully filled in. Then the vessels are coated with glaze made up of about 2 lbs. of lead carbonate, 2 lbs. of *kanch*, and ¼ lb. of gum, mixed with water. On this coating the design is traced by the *naqash* or artist, the groundwork and the design coloured, generally light or dark blue or green. The blue is obtained by using lapis lazuli mixed with water — a thick coat for dark blue and a thin one for light. Green is obtained from calcined copper filings. The required colours are actually produced on baking, and after they have been applied, a further glaze of *kanch* and gum is given to the vessel. The vessel is now dried and then baked carefully so as not to damage the glaze. Sometime during the beginning of the century, a brown colour was also introduced, this requiring two firings : the first before the application of the glaze

to bake the clay, and then for fusing the glaze made up of lead oxide, an amalgam of mercury and tin, and lead in proportions of 1,1,16 respectively.

Sometimes the background is coloured blue or green and the design left in white ; or a dark blue design is produced on a light blue background. If the brown ground is used, the designs may be in purple secured by the use of manganese oxide, or in green. The brown colour cannot be satisfactorily produced on a ground of another colour.

The pottery of the Bombay area used to be rather akin to that of Sind. This is not surprising as years ago, Sind formed a part of the old Bombay Presidency till it was made into a separate state. Sind pottery is usually in two or three shades of the same colour, as for example, a dark pattern in blue on a background of light blue. If floral ornamentation is used, this is incorporated with medallions and decorative panels, the floral motifs being in a lighter shade than the field of the panel. Sir George Watt has pointed out a peculiarity of Sind ceramics that distinguishes the latter from that of Multan : "The pattern is first painted with a white slip then by the colour. This raises it slightly above the level of the field. The tiles were nearly always like those of Multan, white field with a blue design."

The pottery of Bulandshahr (Khurja) and Rampur is more or less similar. In the past, the former produced a special type with the background in orange-brown, rich bluish-green, or light claret, with the floral designs slightly darker in shade, touched in with white and blue ; the pattern was slightly raised above the surface by the use of slip. Rampur was once noted for its *surahis* in a rich greenish-blue, without any other decoration, though later on the pottery was decorated with designs in very low relief. The colours common are white, blue, and claret.

The differences in the ornamental pottery of the different regions of the north were recorded by H. R. C. Dobbs during the closing years of the previous century.

Lucknow produced plates, cups and saucers, decorated with simple designs but in bright unglazed colours. Or trays, vases and plates were made with the colours varnished, the background being in gamboge, red ochre, purple or cochineal and the designs in Indian ink, white lead, or a metallic solder. "The effect is brilliant and the patterns attractive," wrote Mr. Dobbs. According to him, the pottery of Meerut, Bulandshahr and Rampur had a red clay border covered with an opaque white enamel, the designs in dark blue and turquoise, and more rarely in yellow or claret colour. The designs were conventional, yet this pottery had a very pleasing effect. The Amroha pottery was thin and brittle, white in colour and ornamented in colours and with gold and silver leaf. The design was first traced on the vessel with wax and the metallic leaf pressed over it to make it adhere to the traced lines. We are told that the Aligarh pottery "resembles that of Chunar in style. The ornamentation is European in character, consisting of fruits and flowers in relief, which are impressed in moulds and affixed to the surface of the pottery before baking. The ware is coal-black and slate coloured."

Dr. G. Bidie had made a study of the pottery of the southern parts of India and the following is based on his reports. According to him, South Indian pottery is chiefly of plain terracotta of a red colour. The articles have graceful shapes and are carefully fired. Sometimes they may be simply decorated on the surface, probably while the clay is still moist, or by etching after the pottery has been fired. "In some modern pottery a species of ornamentation is attempted by covering the red clay with a white ground colour, and laying on a sort of floral decoration with powdered micaceous earth, which becomes yellowish. This kind of decoration is not fired and can be easily washed off. In the North Arcot district a white kind of clay is used for making pottery, and yields a very porous and clean-looking ware." In some places in the south, this soft pottery is given a beautiful green glaze, and being perfect in shape is imitative of the European Delft ware. The glaze is of different shades of green, and may even have a marbled or shaded appearance. We are told that the ornamentation "is entirely surface decoration, carried out in the plastic clay before the glaze is put on, and consists of various floral and other patterns." An interesting fact is that the water-bottles which used to be made were double, the outer shell being fretted to allow the air to circulate around the inner porous chamber and thus cool the water by evaporation. Great pains were taken over the clay for this porous type of pottery. It was placed on the wheel and allowed to dry for about ten days in the shade, two in the sun, and then baked for twelve hours in a closed oven. The glaze was made of equal parts of verdigris (*zangala pachi*) and *soudu-man,* a kind of alkaline earth. These were fused in a furnace to form the green glaze, and the latter was next powdered and after mixing with water, painted on the sun-dried vessels. These were finally baked once again. By adding half a part of white lead to the verdigris and the bangle-earth (*soudu-man*) a yellow glaze was made. However, if the firing of the pottery is too long prolonged, the glaze whether green or yellow, assumes a blackish colour.

The more technically inclined reader will be interested in the following details about the different glazes used in the united Punjab of old and in Sind. Two kinds were commonly used, glass or *kanch* and lead oxides called *sikka.* The *kanch* may be the "English glaze" (*Angrezi kanch*) or the "country glaze" (*Desi kanch*).

Angrezi kanch was made of white quartz (*sangi-safed*) 25 parts, pure soda (*sajji*) 6 parts, borax (*sohaga telia*) 3 parts, and salammoniac (*nausadar*) 1 part. The different ingredients were first powdered and sifted through a fine mesh, mixed with a small amount of water and made up into balls the size of an average orange. These balls were next heated to a very high temperature, ground down again and sifted.

Placed in a furnace to melt the glaze, it was then mixed with saltpetre. Any foam that appeared on the surface of the molten mixture was carefully skimmed off and all impurities removed.

The *desi kanch* also consisted of quartz and soda or quartz and borax, or even soda and siliceous sand. It was a tradition to light the furnace only with *kiral* or Capparis wood (*Capparis aphylla*).

Four different kinds of lead oxides were and are used : the *sikka safed* or white oxide as a basis of most of the greens, blues and greys ; the *sikka zard* as a basis of yellow glazes ; the *sikka sharbati* or litharge ; and *sikka lal* which is red oxide. The white glaze was prepared by mixing one part of *kanch* and one part of *sikka safed*, grounding the two thoroughly, and melting in a furnace. When fused, borax in the proportion of two chhataks to the seer was added. Sometimes a little saltpetre was also added, especially if the "melt" darkened in colour. The glaze and the colours were well ground together to a fine powder before application to the article. For Western readers, it may be noted that the older seer may be considered as equivalent to about 2⅛ lbs. avoirdupois, and 16 chhataks make one seer.

The following were added to the glaze to produce the different colours : calcined copper for turquoise blue (*firozi*), cobalt for indigo blue (*nila*), zaffre (a black oxide of cobalt) for sky blue (*asmani*), manganese oxide for pink or lilac (*kasni*), manganese and zaffre for violet (*sosni*), manganese for purple (*uda*), copper for greens (*sabz* and *pastaki*), etc.

The coloured glazes made as above were mixed with gum or gluten and water called *mawa,* after reduction to a fine powder, and painted with a brush on the smooth and perfectly cleaned pottery. But first the red clay was given a previous coating of white clay, borax and acacia gum. The articles were then dried and finally baked in a kiln heated with Capparis wood or the wood of the *ber* tree (*Zizyphus xylocarpus*). Experienced potters can paint on the pattern free hand ; but many transfer it first to the vessel by using a pattern pricked out in paper, and dusted through with a powdered colour on to the surface of the article.

Needless to say, unglazed pottery has no final glaze applied to it. But some of the pottery of this country is coated with lac after it has been fired. This makes it non-porous and impervious to water and other liquids. Instead of lac, other substances may also be used, and according to Dr. Hunter, the black and red pottery of Madurai used to be given a coating of the mucilage obtained from the shrub *Abutilon* sp. after being stained. G. Bidie also has recorded of South Indian pottery that sometimes "the external surface has a varnished appearance which was produced by rubbing it with the seeds of *Gyrocarpus* and burnishing. Some of the cup-like vessels of the cairns are covered in the interior with a black lacquer-like varnish." However, the pottery may be covered with many different layers of coloured lacs, one over the other, as is done in some parts of Rajasthan. The design is then formed by scratching through the multi-coats of lac, the depth of the incised lines depending on the colour required for each particular line or area.

Painted pottery is common in many places, some of the best-known centres, in India and Pakistan, being Gujranwala, Rawalpindi, Lahore, Kotah, Lucknow, Jullundur, Peshawar, Sassaram, Madurai, Salem, etc. The colouring is generally done after firing, though not necessarily always, and the designs and styles differ from place to place, as compare the red and yellow painted pottery of Lahore, the black vessels of the North-West with designs in red, those of Peshawar decorated in gold. Nor must we forget the painted ceramics of Sassaram with its Pathan influence and floral designs arranged in geometrical lines in white, yellow, blue or green, on a dark and sombre ground colour.

Painted pottery is especially common in Bengal and is of two kinds : the *sakherhanri,* in which the outside surface is decorated with ordinary paints of different colours, after the vessel has been fired ; in the other, the unfired pottery is painted with *bil-matti,* a kind of earth, and the colour burnt in. On the whole, the ornamentation is simple and the designs without true artistic merit.

There can be no doubt of the skill of the Indian potter, which lies not only in his skilful use of the whole process and his almost care-free drawing of the required design, but also in the size of the vessels he produces. Throughout the fertile plains of Gujarat, clay jars, often five feet tall, are made for storing the grain ; and at Dacca and surrounding regions, huge earthen storage jars are made with a cubic capacity of nearly a ton. This may not seem very surprising till one realises that the Indian village potter's wheel is a very simple and crude affair.

In form, it is like a fly-wheel revolving horizontally, about two to three feet in diameter, weighted round the rim with lumps of clay, and set into motion with the hand, centrifugal force making it revolve for some time with a certain amount of freedom ; actually, once set spinning with the hand, it will go on revolving for about five to six minutes with a true and steady motion. The clay to be shaped is placed on the hub of the wheel, the potter squatting on the ground beside it. As the wheel merrily revolves, the craftsman's skilful hands shape the mass of clay gently into the required form, and once shaped, the vessel is taken off for drying and baking. A rough finish and polish is given by rubbing the baked vessels with a smooth pebble.

Ajit Mookherji has given a good description of the Bengali potter's wheel :

"The diameter of the whole wheel (*chak*) is usually rather more than three feet. In the centre is a solid disc of tamarind or some other hard wood, some thirteen inches in diameter, to which the outer rim is joined by means of four wooden spokes, each of which is six inches in length. The outer rim, which is about six inches wide, is made of bamboo splints, bound with cane and covered with a thick plaster of

clay mixed with jute-waste ; the object of this rim is to act as a counterbalance. The wheel is supported on an iron or wooden axis turning in a pivot fixed in the ground. This enables the wheel to revolve freely and reduce the friction to a minimum. The wheel is worked by hand or by means of a bamboo stick (*lathi*), and revolves horizontally."

In every village in India, however primitive, there is a potter's workshop, perhaps just outside the village, where he makes his pots and pans, his water vessels and other domestic utensils, the figures of gods and goddesses, and even bricks and tiles. His is the job of supplying the whole village with pitchers for keeping water, jars for storing grain and spices, and cooking pans for the womenfolk. His is an honoured office for he is a respected member of the village social hierachy. "He is, in truth, one of the most useful and respected members of the community, and in the happy organisation of Hindu village life there is no man happier than the hereditary potter, or *kumbar*." (Birdwood.)

In his "Journal of a March from Delhi to Peshwar", Lieutenant Barr has thus described the native potter at work:

"In the centre of a circular hole, two feet and a half deep by as many in diameter, a wooden staff was inserted, and upon this, close to the bottom but not touching it, was a solid wheel of wood, whilst another of smaller dimensions was fixed nearer the top. The whole of this apparatus was planted perpendicularly into the ground, and the man, sitting on the edge of the cavity, worked the larger wheel with his foot, whilst with his hand he moulded the clay placed on the smaller one (which was turned with former) into whatever form he required. We saw him construct a utensil somewhat like a flower-pot, and he finished it in a very neat manner in less than five minutes."

From the above description it is apparent that both hand-turned and foot-revolved wheels were used in this country, and they still are.

This is certainly true of the Punjab, as is clear from what C. J. Hallifax has to say :

"The wheel or *chak* is used in 'throwing' or turning most kinds of pottery ware, though large vessels are subjected to considerable manipulation after leaving the wheel. In the case of very large articles, the *chak* is not used at all, the moulding being done entirely by hand, and in the case of *surahis, jhahhars,* and *chillams* the wheel is used only to finish vessels prepared in moulds. Two descriptions of wheel are in use, viz., (1) a single wheel turned by hand and supported on a pivot placed upon the surface of the ground ; and (2) a double wheel, which is fitted in a hole, 2 feet 6 inches or 3 feet deep, and is turned by the action of the feet. The simple wheel is called *ram chak,* and is that which is almost universally used in the Divisions of Delhi and Jullundur, the double wheel being found only in Delhi and the large towns, where it is used for the moulding of big vessels." (*The Journal of Indian Art,* Vol. V, 1894.)

We are further told that the *ram chak* may be made of wood, stone, or clay, and is turned by means of a stick known as the *danda.* "The workman imparts an initial impetus with his hands and feet, and then grasps the stick with both hands, the right being over the middle of the *chak,* and the left holding the end of the stick. An action of the hand and wrist causes the wheel to revolve, and it is so well balanced that the impetus given is sufficient to keep it spinning steadily for from 5 to 10 minutes."

The double wheel is called *chak lakri* in the north and is fixed in a pit as described above. Its axis passes a beam placed over the pit and revolves on an iron pivot placed on a block of stone. Two wheels are fixed to the axis, one at the top and the other at the bottom. The upper disc is about nine to ten inches in diameter and about two inches thick ; on this the clay to be worked is placed. The lower wheel, nearly two feet in diameter and three inches thick, is bound on the edge with an iron band. The potter sitting on the edge of the pit, pushes the lower wheel with his foot and sets the axis and upper disc spinning.

However crude his wheel, however primitive his mode of work, the Indian potter continues inviolate his ancient tradition of symmetry and beauty of form, harmony in colours, and the aesthetic handling of the surface decoration. He works with a unity of purpose and a seeming premeditation not always exhibited by the craftsman in other fields of the industrial arts.

ENCAUSTIC TILES

"The sight of wonder is, when travelling over the plains of Persia, or India, suddenly to come upon an encaustic-tiled mosque. It is coloured all over in yellow, green, blue, and other hues, and as a distant view of it is caught at sunrise, its stately domes and glittering minarets seem made of the purest gold, like glass, enamelled in azure and green, a fairy-like apparition of inexpressible grace and the most enchanting splendor." (Sir George Birdwood.)

The glazed encaustic tiles of Multan and Sind have already been casually mentioned. The making of these tiles for architectural use is no longer an art-industry, and so what follows will be primarily of a historical nature.

It is not contested that the use of coloured glazed tiles as a form of architectural decoration, unequalled for the variety of design and magnificience of colour, is of ancient origin in Persia and may have ultimately been derived from Babylon. The art in India may have reached the country from Persia, but if so it is representative of a much later development of the art in the latter country, an art which surprisingly bears some traces of a Chinese influence. It is further believed that the art of making and using coloured encaustic tiles must have reached India by the first quarter of the fourteenth century, or at the earliest, by the end of the thirteenth century. According to Sir John Marshall, the tile-work of the tomb of Baha-ul-hakk at Multan, probably dating from A.D. 1264-1286,

belongs to this age, although it was extensively rebuilt in the seventeenth century. This work shows the "Key Pattern" in white on a dark blue background. Perhaps still finer is the tomb in Multan of the saint Rukn-ud-Din, better known as Rukn-i-Alam, the grandson of Baha-ul-hakk. It is "elaborately ornamented with glazed tile panels and string courses and battlements. The only colours used are dark blue, azure, and white ; but these are contrasted with the deep red of the finely polished bricks, and the result is both effective and pleasing." (Cunningham.) The design consists of interlacing circles in dark blue on a white ground, with stars and polygons in a pale blue in the interspaces.

"To the sober taste of the Westerner this mode of decoration may appear too gay and gaudy to suit the nature of a building intended for religious worship or for a last resting-place of the dead," observes Dr. J. Ph. Vogel. "But certainly no decorative art could be devised more truly oriental in the dazzling brilliancy of its bright colours, more bright and brilliant in the splendour of an Eastern sun."

Built sometime in A.D. 1475-80 were the Tantipara and the Lattan mosques at Gaur in Bengal. Both are decorated with encaustic tiles, those of the Lattan mosque, or the Painted Mosque as it is called, being enamelled in green, yellow, blue and white and arranged in bands. Some of the Gaur tiles bear markedly Hindu characteristics and it has been said that "it is possible that the art, however introduced originally, may have been known to the Hindus of Bengal in an imperfect form before the Muhammadan conquest." (Vincent Smith.)

The first Mughal emperor Babar has recorded in his *Memoirs* that the palace of Raja Man Singh at Gwalior, built in the sixteenth century, was decorated with glazed tiles. "The outside of the walls they have inlaid with green painted tiles. All round they have inlaid the wall with figures of plantain trees made of painted tiles." Regarding this, Cunningham says that the plantain or banana trees mentioned by Babar are of natural size, "but the leaves made of bright green glazed tiles are very regularly disposed on each side of the yellow stems, and the effect is consequently too stiff and formal. The diamond patterns in blue tile, and the long narrow lines of the same colour are, however, both effective and pleasing."

The French artist and traveller, Louis Rousselet, was so enchanted by the palace of Man Singh, also called the Chit Mandir or Painted Palace, that he wrote :

"The walls are covered with a profusion of coloured tiles — bands of mosaic candelabra, Brahmani ducks, elephants and peacocks — enamelled blue, green and gold, giving to this massive wall an unsurpassed charm and elegance. The tiles of the great windowless south wall possess a brightness and delicacy of tint unblemished by the four centuries which they have weathered. Nowhere do I remember any architectural design capable of imparting similar lightness to a simple massive wall." (*India and Its Native Princes*, 1876.)

By a strange irony of fate, these beautiful rooms of a palace that excited the admiration of Babar, were used as a State prison by the Mughals. And it was here that Emperor Aurangazeb imprisioned his brother Murad in A.D. 1659 till he died in A.D. 1661.

The tile art seen on the later Mughal structures are of a more artistic type. Called *chini* or *kashi*, the architectural ornamentation consists of pieces cut from the encaustic tiles and used in the form of a mosaic. Dating from the seventeenth century, the tiles are to be seen in a greater variety of colours than before, the art apparently having reached its zenith in the reigns of Jahangir and Shah Jahan. As to the mode of manufacture of the tiles, opinions differ. J. L. Kipling believed that the decorative patterns were first painted on large clay sheets, cut up into tiles, and then fired. F. H. Andrews, who experimented with the process, came to the conclusion that the whole sheet was cut into tiles after glazing and firing. In any case the art is now almost dead in this country.

According to J. L. Kipling, "In the Punjab, although there are many examples of the use of ordinary faience tiles covered with enamel and painted in patterns, the art received in later times a new development. This consisted of the substitution for earthen tiles of an artificial paste or body, made chiefly of siliceous sand with lime and other ingredients, held together with gum or rice water, and resembling the paste of the Delhi pottery of today, to which however it is inferior in texture. Slabs of this paste, it would seem, were prepared of a suitable thickness, and on them the designs of foliated panels and other details are drawn. They were then cut up in pieces following the lines of the design. The leaves and flowers intended to be green or red were painted with suitable colours ; the grounds were also cut into pieces, coloured and apparently burned separately. The details of ceramic mosaic thus prepared were embedded in lime mortar, generally within a margin of moulded brick. Curved surfaces were not often attempted in this material . . ." (*The Journal of Indian Art*, Vol. II, 1888.)

According to Vincent Smith, "The most remarkable series of tile pictures in the world is the huge band on the walls of the Lahore Fort, extending from the Elephant Gate (*Hathi Pol*) to the north-eastern tower of Jahangir's quadrangle for a length of 497 yards, with a height of 17 yards. Nearly the whole of this enormous surface is faced with painted tiles representing elephant fights, a game of polo, and other scenes."

Another superb example of tile-work is also to be seen in Lahore, in the Wazir Khan mosque, built in A.D. 1634 on order of its founder Ala-ud-din or Ilm-u-din of Chiniot, Governor of the Punjab under Shah Jahan. Even today the *kashi* work of the exterior and the minarets is in a fair state of preservation, but when new must have exhibited great brilliance and supremacy of execution.

The origin and mode of manufacture of the kind of *kashi* used here seems uncertain. According to

F. H. Andrews who was the Principal of the Mayo School of Art in Lahore, "It differs from that usually used in Persia in that the several colours are cut to shape, in the manner of the coloured glass in a stained glass window, and are then embedded in a matrix of mortar. It has been suggested that the paste composing the body of the pieces was cut to shape and glazed in proper colour before firing." And he continues :

"At the present time, the walls being almost entirely stripped of their *chunam* coat, exhibiting weather-worn bricks, the brilliant unchanged colours of the *faience* assert themselves somewhat harshly. With the minars, however, the facade of the sanctuary, and the entrance gateway, where a very small portion of the surface was left for plaster, the effect of the gorgeous colours against the soft blue of a Punjab sky, and saturated with brilliant sunlight and glowing purple shadows, is indescribably rich and jewel-like." The decoration of the interior is also extremely rich but is done in fresco on a very smooth and almost marble-like *chunam* surface.

The reader's attention must also be drawn to the tile-work of the Chini-ka-Rauza at Agra, the mausoleum of Afzal Khan. Unfortunately, the tomb is at present sadly in ruins, but exhibits the use of tile mosaics in various colours, set in a bed of plaster. The chief colours to be seen are vermilion, orange, blues and greens, in pale shades and with a metallic lustre. The floral patterns of many of the panels are very pleasing.

Another style of tile decoration has been described by Sir John Marshall :

"A third kind of tiles is found on buildings of the eighteenth century, such as the mosque of Muhammad Amin at Lahore (beginning eighteenth century) and the mosque of Zakariya Khan near Lahore . . . It is strange to find the same type combined with *Kashi* work on the tomb of Asaf Khan at Shahdara as early as A.D. 1634. The tiles of this class are square. They form, consequently, not a tile-mosaic as the two earlier types, in which each separate piece has its own shape and colour, but are similar to the tiles known in Europe. The colours are faint as compared to (*sic*) those of the *Kashi* tiles, pale green, blue and yellow being the most prominent. In one case, the tomb of Sharf-un-nissa, known as the cypress tomb (*Sarvvali maqbara*), not far from Begampura near Lahore, we find, besides *Kashi* work on the part of the walls, square blue and white tiles of a type well known in the west of Europe. This building also would seem to belong to the eighteenth century."

Among the less known specimens of tile-work at Lahore are the mosque of Dai Anga, the nurse of Shah Jahan, the gateway to the garden of Aurangzeb's talented daughter, Zebinda Begum, and the gateway to the tomb of Ali Mardan Khan, Governor of Lahore — all constructed between A.D. 1630 and 1660, the period of the zenith of Mughal art. But it is said, "The imperial palace of Lahore outshines all these buildings by the truly princely magnitude of its colour decoration." The walls of the Lahore Fort are decorated with *kashi* tile mosaics which though sadly damaged still retain a vestige of their former brilliance of colour. The designs used here and on the wall of the Saman Burj, are not only floral and geometrical, but a large number of the tile panels represent figures of living beings, considered against the tenets of Islam. Many scenes depict court life, elephant and camel fights, one panel representing four horsemen playing polo (*chaugan*). Elephant fights seem to have been the chief form of recreation of the Mughal Court if we are to judge from the very large number of panels portraying such scenes. In the words of Dr. Vogel, "Dark blue elephants are most prominent, and the action of these massive beasts is ever expressed with singular vigour. . . . According to prevailing custom, each of the two elephants is mounted by two men, so that the second might at once take the *mahaut's* place if the latter — as often happened — was pulled down and trampled to death by the opposing animal." However, the horses are not figured with the same excellence and do not display spirit or vigour as compared to the elephants.

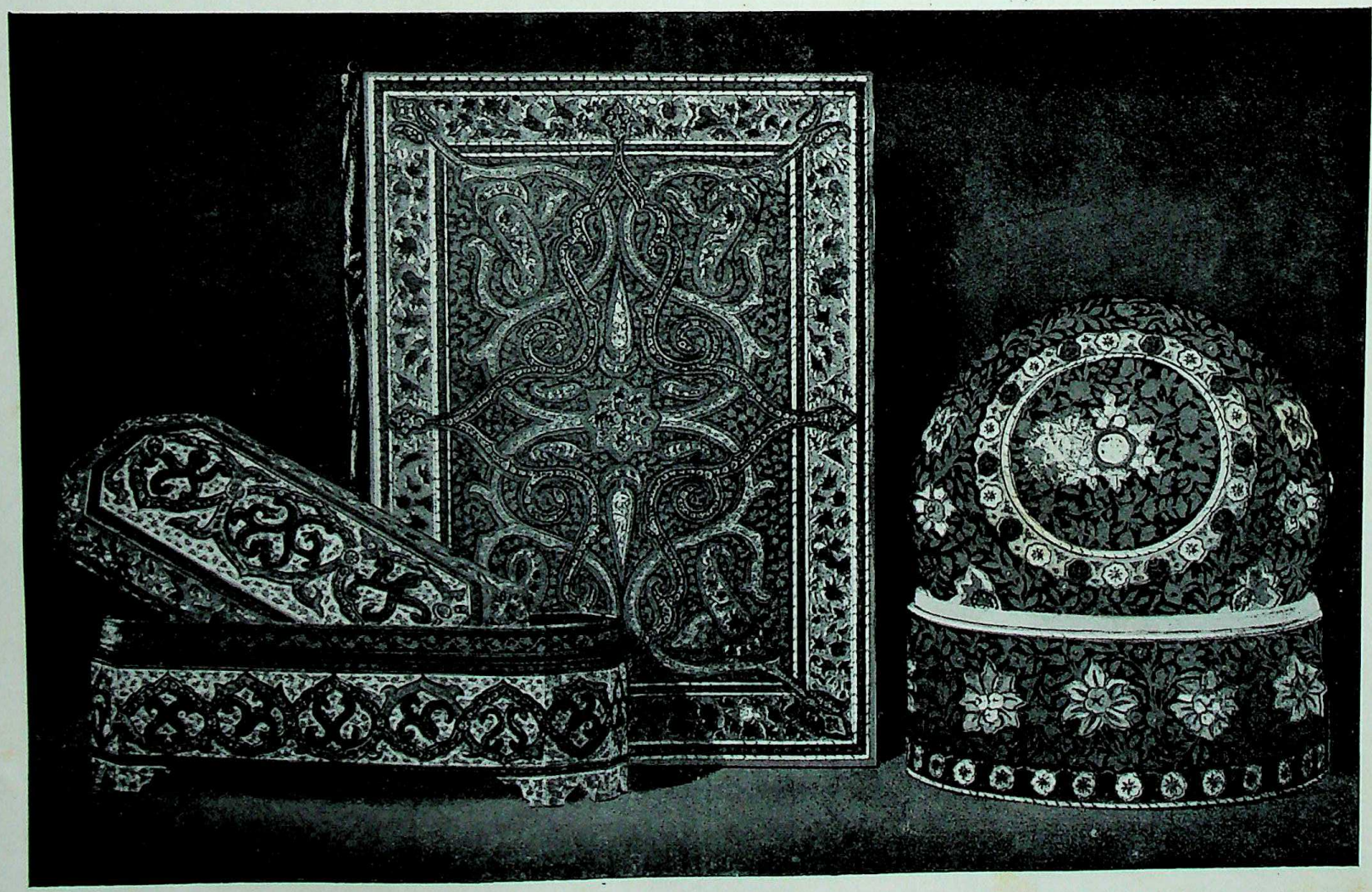
GLASSWARE

Like clay pottery, it is almost certain that artistic glassware was also made in India in very remote times and was perhaps even exported, as the Roman Pliny has recorded that Indian glass was superior to all others because it was made of crushed and powdered crystal. It is certain that glass was extensively used in Mughal times as some of the beautiful cut-glass *hukka* bowls, now in many museums of the world, testify. But very little really artistic glassware is produced today, excepting the fine glass bangles of Firozabad and a few other places. In most of the large towns and cities, the glass bangles so universally used by Indian women, are manufactured on a large scale in glass factories utilising all the machinery and technical knowledge of the day.

Speaking of the antiquity of ancient Indian glassware, T. N. Mukharji writes : "The manufacture of glass was known in ancient India. As early as eight hundred years before Christ, i.e., at the time when the *Yajur-Veda* was composed, glass was one of the articles of which female ornaments were made. It is also mentioned in the *Mahabharata,* and in another old book called the *Yuktikalpataru* the effects on the human system of drinking water out of a glass tumbler are stated to be the same as those of drinking out of a crystal cup."

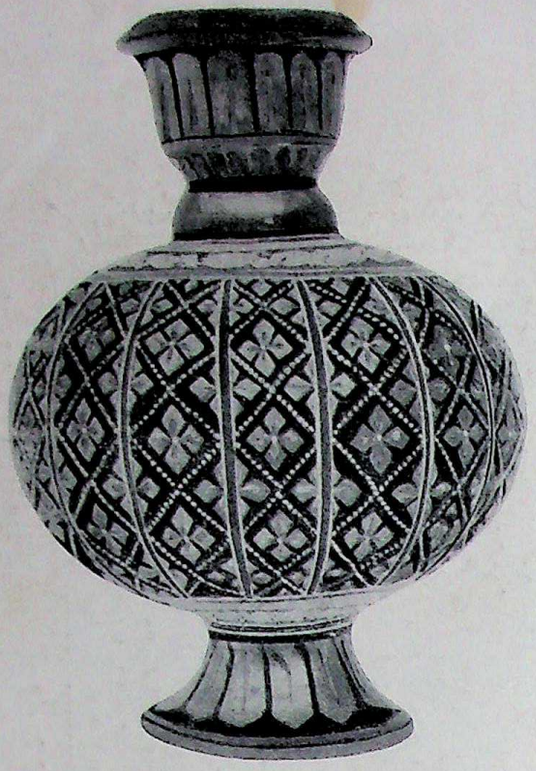
In India, glass was mostly used for the manufacture of bangles, called *churis* in the Punjab. Very often the glass or *kanch* was not made, but use was made of old glassware, broken up and re-melted.

To make the glass bangles the furnace is first heated and a crucible filled with powdered *kanch* placed inside on a ledge. When the glass has melted into a thick viscous liquid, a little of the latter is taken up on the hook of the *ankri* (an iron rod about a foot



Three examples of Indian lacquer work. The round box in gold design on blue ground is from Hyderabad ; the oblong pen box from the Punjab ; and the blotter case from Srinagar in Kashmir. It is said, "Nothing in the way of surface decoration could be more rich and harmonious than lacquer-work from India — perfect in design and execution."

(From *Masterpieces of Industrial Art and Sculpture*, by J. B. Waring)

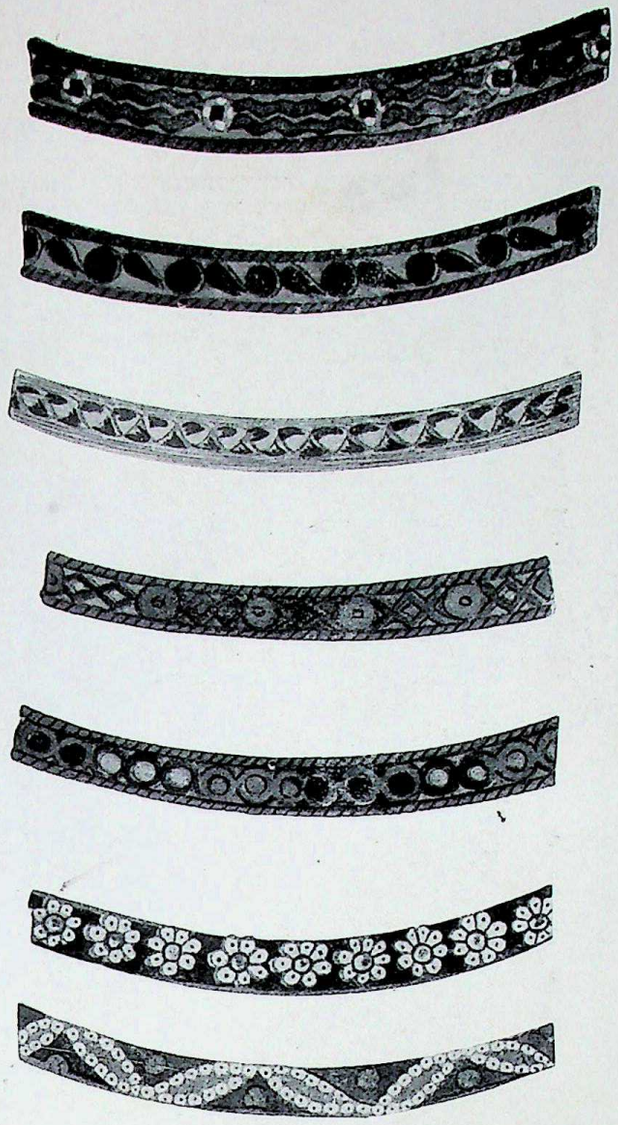


VASE

WATER BOTTLE

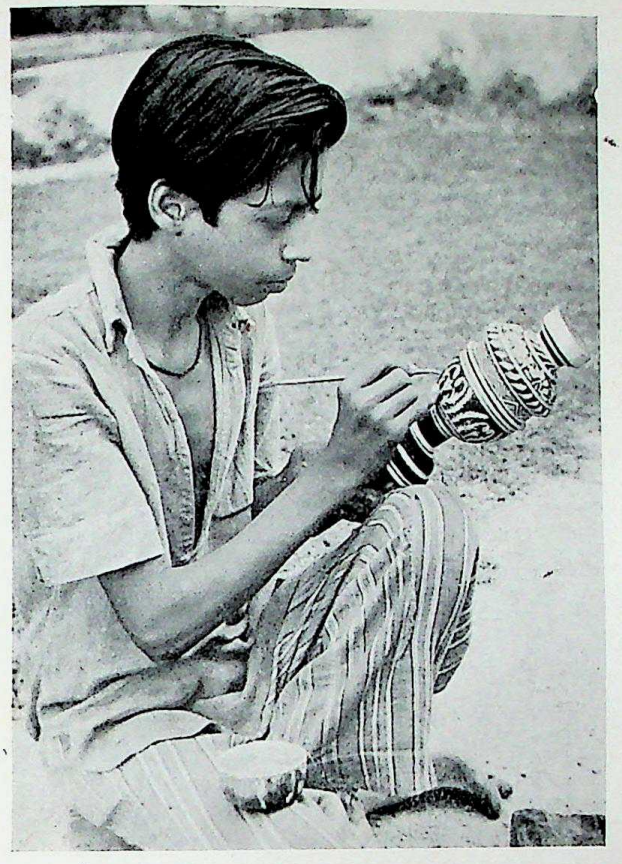
OIL FLASK

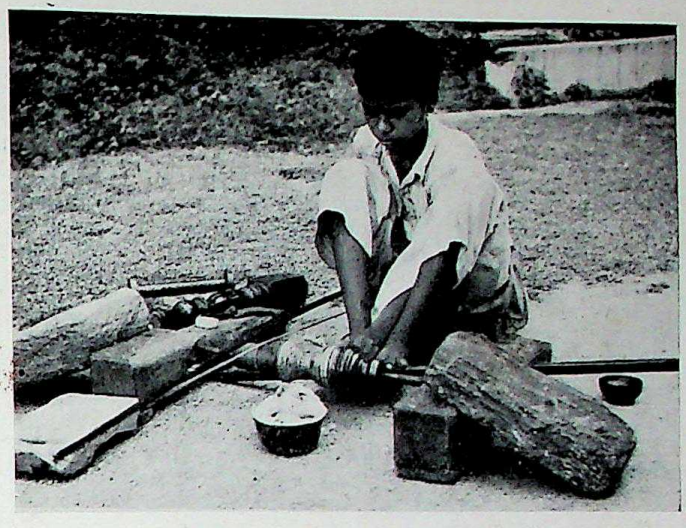
Examples of lacquer ware from Bikaner in Rajasthan. The work is done on wood, stone, clay, metal or even glass articles. The design is floral or geometrical and the colours bright and pure. The beauty of the work is enhanced by a free use of gilding.



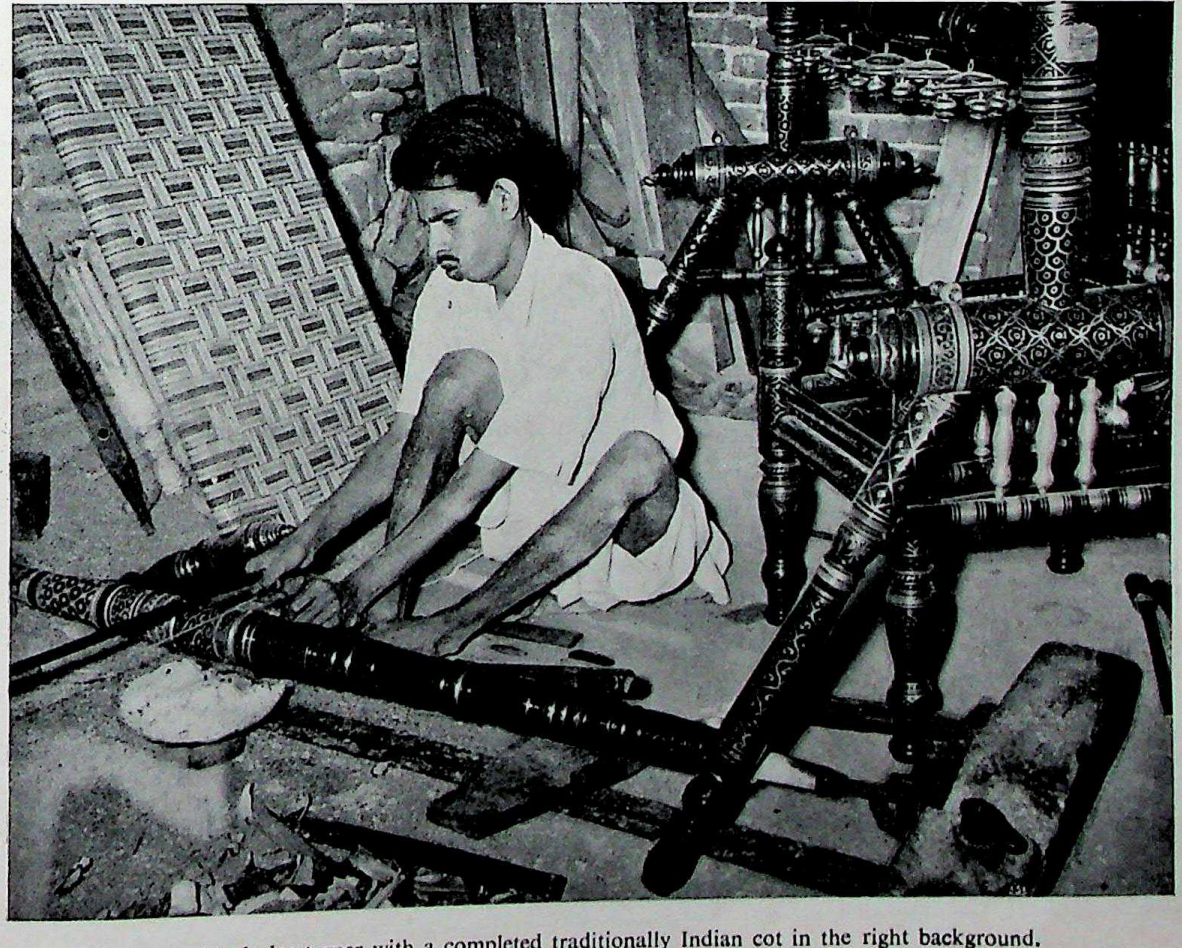
Sectors showing the designs on lac bracelets made in Ajmer in Rajasthan.

(From *The Journal of Indian Art and Industry*)





Above: A lac-turner of Sankheda at his crude lathe. *Left:* Painting the article with an amalgam of powdered tin and glue.
(*Photos : B. Bhansali*)



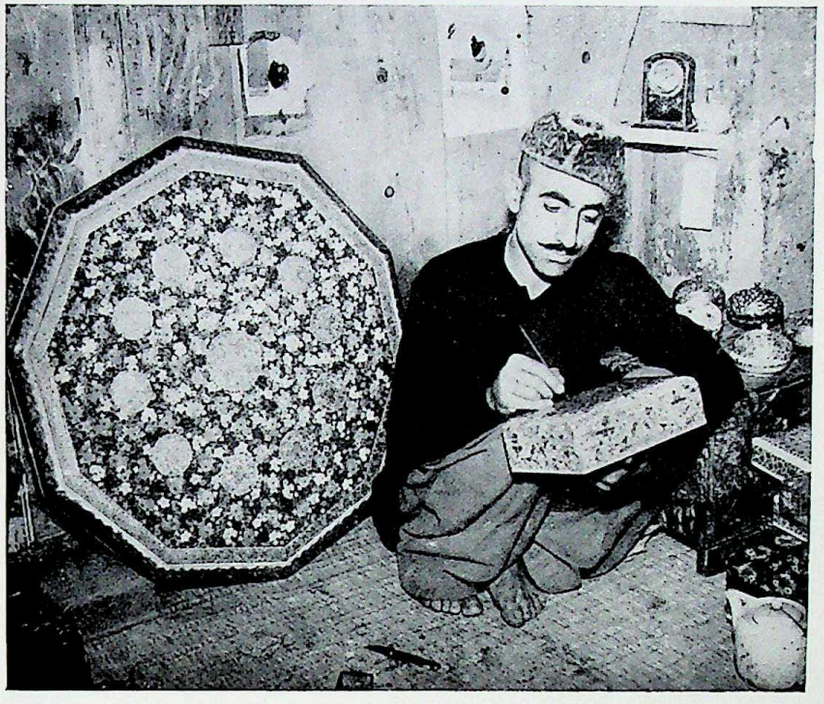
A Sankheda lac-turner with a completed traditionally Indian cot in the right background.
(*Photo : R. J. Chinwalla*)

Papier-maché puppets of Rajasthan. Here are two rajput warriors in consultation before attack on the Moguls.

(*Photo : T. Narindra Paul Singh*)

A craftsman of Kashmir at work on a lacquered box.

(*Photo : S. G. Pradhan*)



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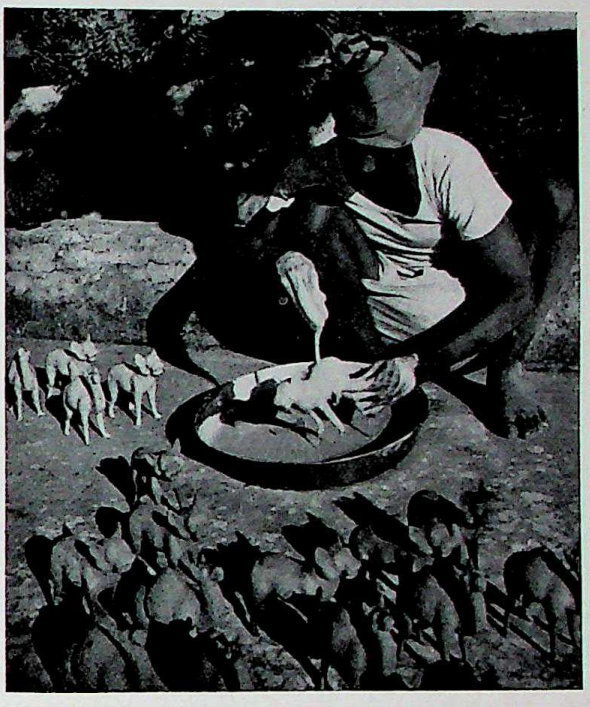

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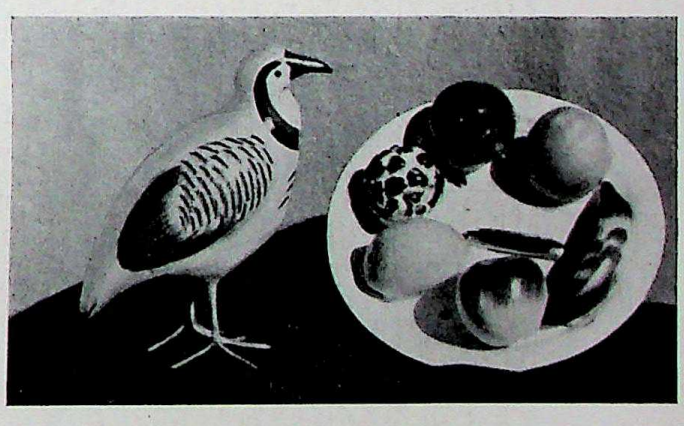

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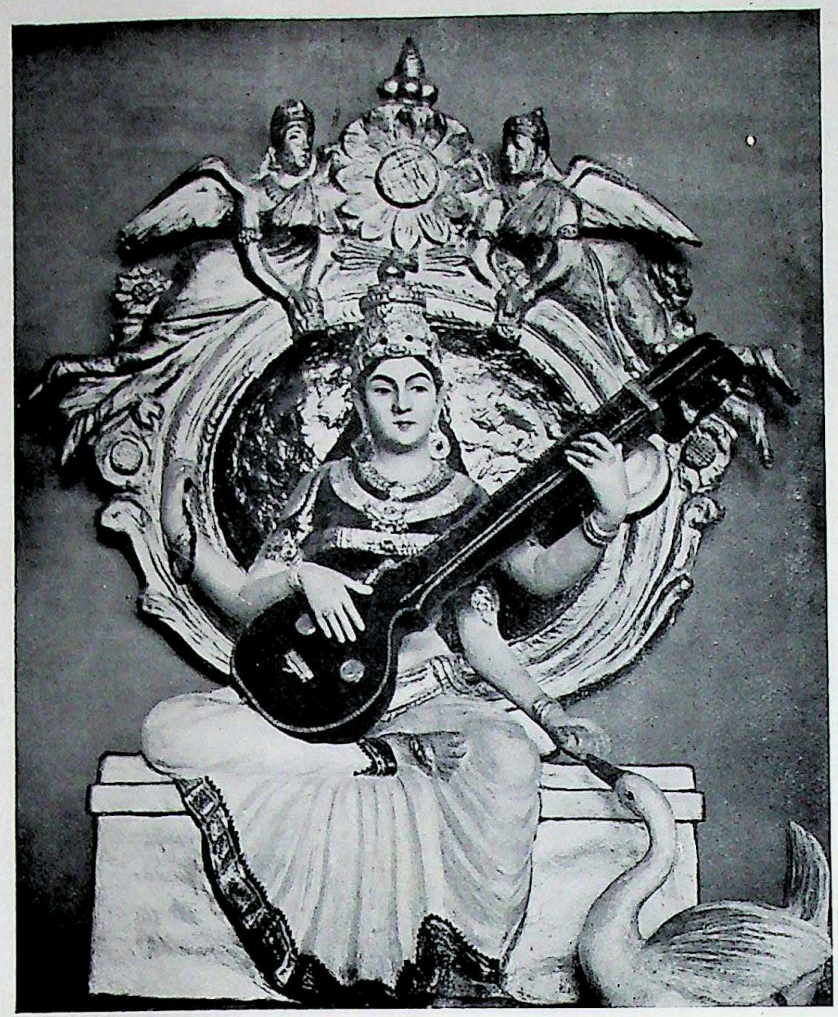
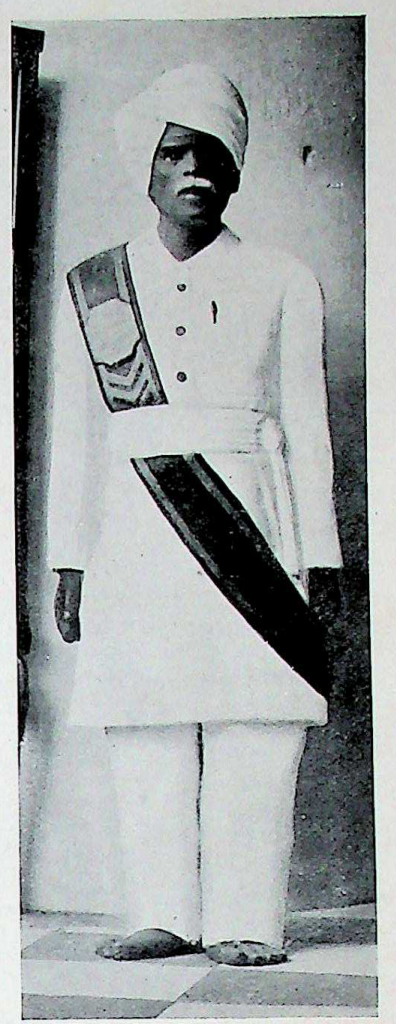
The making of papier maché toys in the open, in Jaipur. 1. The paper pulp is pressed into the clay mould. 2. When dry the toys are given a coat of plaster of paris, or chalk. 3. The final touches being given to a papier maché bull. 4. A group of realistically painted fruits and a bird.

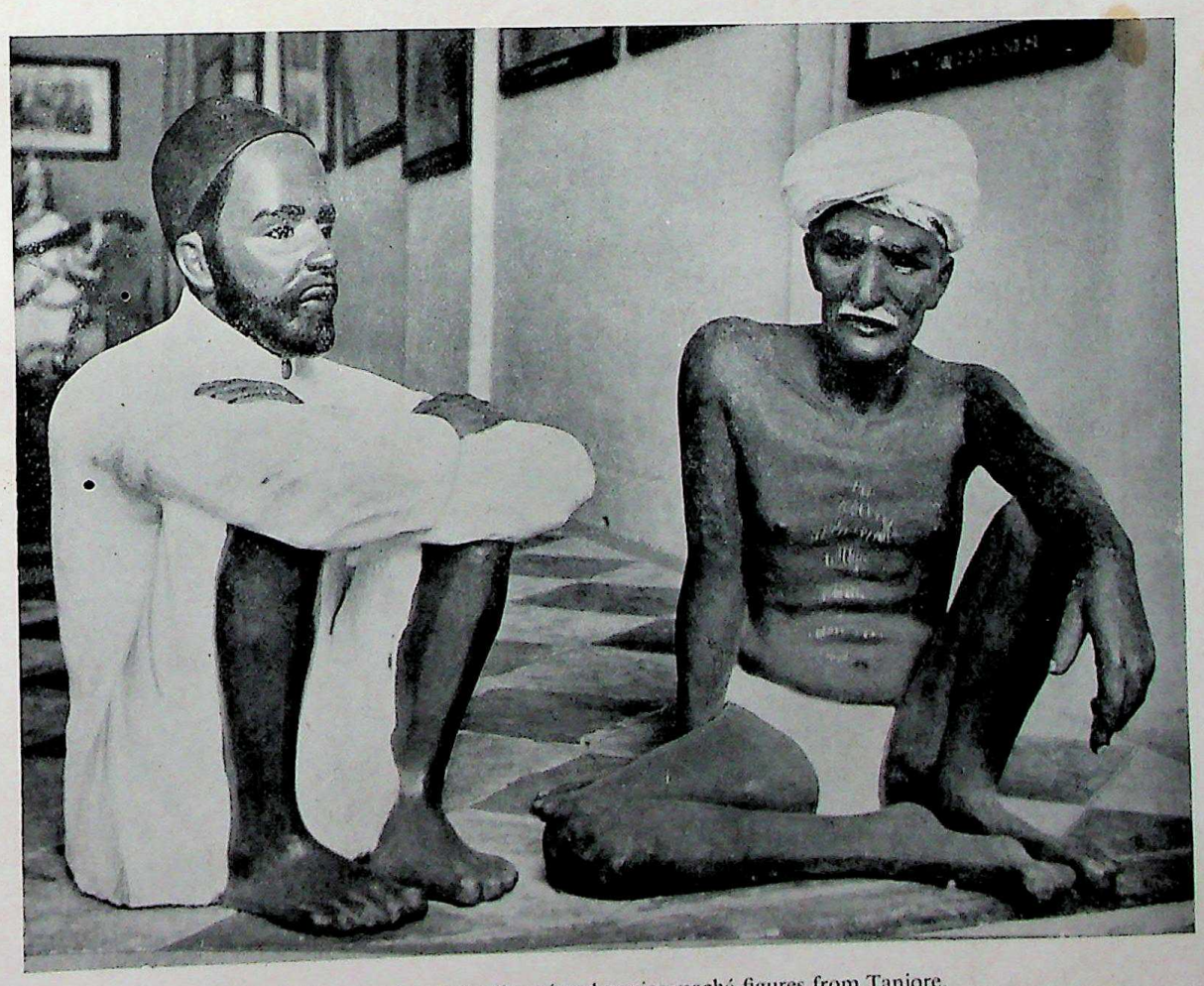
(Photos : B. Bhansali)



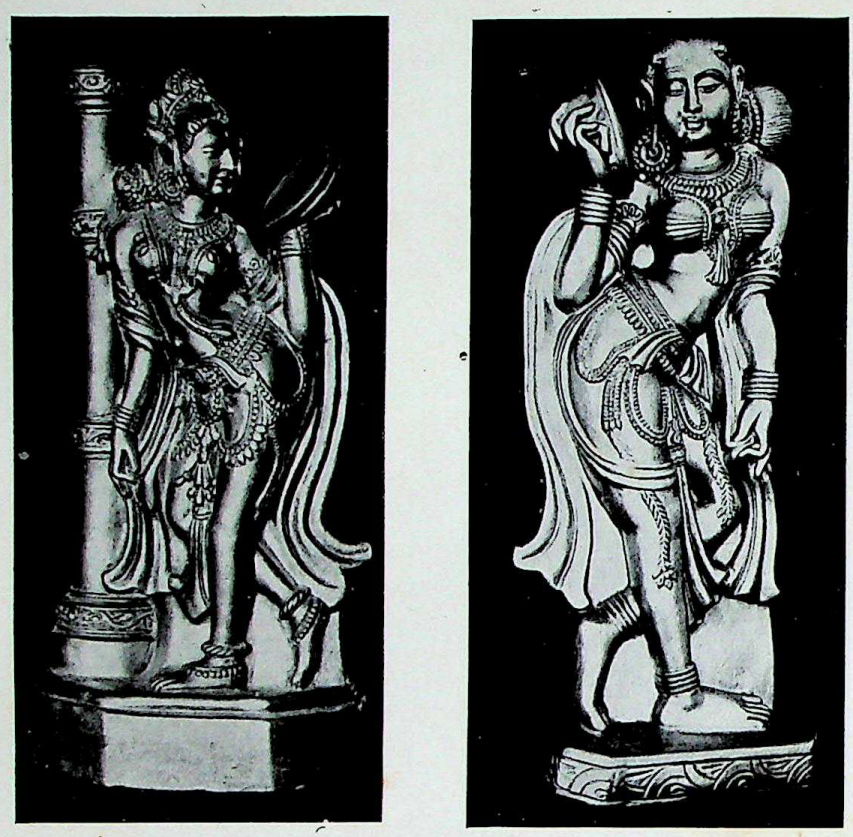


Life-size and realistic papier-maché figures of Tanjore, reminiscent of the wax-work personalities of Madame Tussaud.
Left : The dozing servant. *Centre :* Goddess Saraswati, the goddess of wealth. *Right :* Peon.
(*Photos : E. S. Mahalingam*)

Brightly painted "dancing dolls" of South India, from Tanjore.



Life-size and realistically painted papier-maché figures from Tanjore.
(Photos : F. S. Mahalingam)



Two papier-maché female figures with mirrors. The one on the left is meant as a lamp stand.
(*Photos : A. S. Vaswani*)

Painting papier-maché masks.
(*Photo : B. Bhansali*)

long and with a hook at the end). Holding the *ankri* in the right hand the molten glass on it is wound round the *sinkh* held in the left hand. The latter is a long iron rod pointed at one end. Thus a ring is made, which is allowed to cool and then detached with a gentle blow of the *mala* — a narrow iron bar. The ring thus formed is now placed on the end of the *takla* (an iron rod tapering to a point) that is placed in the furnace and twirled round and round as it is heated. The twirling of the ring makes it thinner but larger. When large enough, it is transferred to the *kalbut* (a cone of clay fixed to the end of an iron rod) and this is again spun. When the hot ring has reached the size desired it is allowed to cool.

The bangles may be of different colours : *asmani* (sky blue), *uda* (purple), *zard* (yellow), *sabz* (green), red, etc. An old report about Sialkot describes a method of ornamentation practised there at the time of the report. "The rims of *churis* are ornamented by heating them and melting fine rods of glass and applying them. These rods are made by taking some melted *kanch* on the hook of the *ankri,* and drawing it like wire. They are made about 3 feet long and about one-sixteenth of an inch thick, of different colours : sometimes black and red or black and white *kanch* are drawn together and twisted so that when it is laid on the rims of the *churis* it gives them a dotted appearance, black and red, or black and white dots alternating. These rods are called *sar,* and this kind of ornamentation is done at the furnace by the workmen."

The glass bangles may also be ornamented by heating them and coating with lac and dusting on powdered colours before the lac has cooled. Glass beads, scraps of coloured glass, gold and silver foil, etc., may also be used as decoration materials.

To quote from a small pamphlet issued by the Directorate of Industries & Commerce, Andhra Pradesh, "The Glass Bangles and Beads industry is being carried on in Andhra Pradesh on an extensive scale. The artisans of Papanaidupet in Chittoor district have been engaged in manufacturing without the aid of modern machinery, glass beads of a very high standard that has elicited the admiration of foreign experts."

It may be noted that glass bangles are called *vang* in certain districts and in Multan, and *chittal* in the Gujarati-speaking regions of the west.

From the records of Pliny, mentioned above, it seems that in ancient times, glass in India was made out of powdered crystal. By the end of the last century, very little good glassware was produced in the country, and that little with *reh,* an impure carbonate of soda. The few articles that were made were *surahis,* water vessels, cups, plates, flower vases, flasks. Glass walking sticks were made at Lucknow. But on the whole, glass manufacture in India is no longer an art-industry, and merits no further discussion.

However low the output, really beautiful articles of the finest crystal were made, especially in the northern regions, every object a fine example of perfect skill. The crystal must have been worked on a special wheel. Like his fellow potter, the lapidary probably used a simple and rather crude wheel as is clear from the following description in an old 19th century issue of the *Bombay Times :*

"The wheel consists of a strong wooden platform sixteen inches by six, and three inches thick. In this are two strong wooden uprights ; between these is a wooden roller, eight inches long and three in diameter, fastened into a head at the one end and this works on an iron spindle or axle at each end. On the one end the axle is screwed and fitted with a nut, by which the cutting or grinding wheel can be made fast. The lap-wheels consist of two circular discs or cakes of lac, with ground korund, coarse or fine according to the work ; of a copper disc for polishing the very hard, and a wooden one for finishing the work of the softer description of stone. These are spun backwards and forwards by a bow, the string of which passes round the roller. The lapidary sits on his hams, steadying the wheel with his foot, and holding on the stone with his left hand while he works the bow with his right." But what matters how crude the craftsman's tool if he could create beauty by its use. The stone masons who carved the world-famous temples and cave-cathedrals of India probably used nothing more than steel chisels and an iron mallet, yet "with such simple instruments they formed, fashioned, and scraped the granite rock . . . and excavated the wonderful caverns of Ellora." (Dr. Kennedy.)

CLAY FIGURES AND FOLK TOYS OF INDIA

It is interesting to find that the folk toys of India, particularly those found at the excavated sites of ancient centres of culture, show very striking similarities to those discovered in Crete, ancient Egypt, and the centres of Maya civilisation in South America. The famous authority Flinders Petri has pointed out that in the workmen's quarters at Memphis there were Indian-type terracottas of women and of the seated Kuvera. Again, according to D. H. Gordon there is a connecting link between the terracottas of the Hellenistic period from Bengal to the Eastern shores of the Mediterranean.

As far as India is concerned, the most ancient toys of which we have any record belong to the period of the Indus Valley Civilisation, dating from 2500 to 1700 B.C. — toys that bear a surprising affinity to the handmade folk toys of a much later date. At the ancient sites of Mohenjo-Daro and Harappa have been found terracotta toys representing human figures, farm carts, cows, sheep, pigs, oxen, birds and animals, rattles, whistles, balls, and kitchen utensils all pointing to a settled rural existence. It is worth noting that some of these toys, like bulls with nodding heads, were apparently worked by string, indicating that the toy makers of even such remote times had a mechanical bent of mind.

However, it is very necessary to bear in mind that all the terracotta figures unearthed at Mohenjo-Daro and Harappa may not have been meant to be used as playthings. They may have been cult objects, with a minor part to play in ancient magical, funerary, or religious rites. Rather curious is the fact that while some of the toys found show a remarkable skill of execution, others are very crude. Could it be presumed that the former were the output of professional and trained craftsmen, the latter attempts of the children to provide themselves with playthings. After all, even children today will often make rough toys of modelling clay, wood, paper, and other odds and ends — toys that they will sometimes treasure more highly than the beautifully finished factory products.

The figures and toys found at Harappa are more varied in style and kind than those of Mohenjo-Daro. Animals like bulls, goats, tigers, elephants, pigs, rams, dogs, rhinoceroses, reptiles, snakes, squirrels, crocodiles, fish, turtles, ducks, birds, insects, pigeons, sparrows, owls, parrots, cocks and hens, grasshoppers, have all been found.

Excavations at the ancient sites of culture of the Indo-Gangetic Valley — Kosam near Allahabad, Banaras, Sarnath, Champaran, Basrah and Buxar in Bihar, Pataliputra, Mathura, Rajghat, Ahichchhatra, Rangmati and Rajshahi both in Bengal, etc. — have all yielded a large number of figures and what are apparently toys. The same is also true of ancient cultural sites in the south like Arikamedu near Pondicherry and Chandravalli and Brahmagiri in Mysore.

"The picture that emerges from the wealth of material that archaeologists have recovered from the few excavated sites in this vast country is, indeed, instructive," writes Mrs. K. S. Dongerkery. "It shows that in the manufacture of toys the ancient craftsmen of India spared no pains. They provided the children with models of almost all the domestic and the important wild animals and the deities of the Hindu pantheon so that in playing with these toys they might unconsciously widen their knowledge of and interest in animal life and imbibe the traditional culture of the country. The craftsmen also reproduced in a miniature form the pots and pans in domestic use."

The same author has indicated the peculiar features of the toys found at different sites. Figures of animals and birds are most frequent at Harappa and Chanhu-Daro ; Kosam seems to have specialised in toy carts and even to have tried to represent the toy-cart of Mrichchhakatika* fame. The workmen of Sarnath however appear to have been most concerned with horses and riders. As to the cultural sites in the south, we find traces of foreign influences and contacts with other countries.

If any further proof of the ancient lineage of toys in India were needed, it is to be found in the classics of old, in Buddhist literature, sculptural representations on stupas and temples, especially the sculptures of Amaravati and Nagarjunikonda, dating to the 2nd and 3rd centuries A.D.

Later Sanskrit literature literally abounds in references to toys and children's games, and we are forced to the conclusion that the children of ancient India must have had a variety of toys to play with, toys which were not merely for amusement but instructive as well, and often decorated though simply, indicating that the aesthetic aspect was not neglected by the toy-makers of old.

It has been pointed out that the dolls and figurines made in the different parts of the country show individual characteristics — "the elegance of the women of Rajasthan, the alluring grace and charm of the Bengali woman, the powerful stockiness of the Maharashtrian, the intelligent awareness of the Andhra, the vivaciousness and sharpness of the Tamilian are all represented faithfully in the toys of the respective regions." (K. S. Dongerkery.)

* "The Little Clay Cart", a drama in ten acts, by king Sudraka, and probably the oldest Sanskrit play extant, supposed to have been written sometime between the first century B.C. and first century A.D., according to S. N. Das Gupta.

The charming dolls made in Rajasthan are always richly clothed and suitably ornamented with traditional jewellery, the costume dolls of Bharatpur being considered the finest. Among the Bengal toys, the commonest are sets of men in red and blue uniforms, perhaps representations of the men employed by the old East India Company. Toy forts seem to fascinate the Maharashtrian boy the most; the figures of milkmaids turned out at Banaras and Mathura are symbolic of the *gopi* and reminiscent of the age-old legend of Radha and Krishna. Themes centring round Lord Krishna are also most commonly depicted in the toys of Kathiawar, Gujarat and Madhya Pradesh.

Naturally, the production of the toys depends considerably on the raw materials available in each region. Hence, in Rajasthan the toys are generally made of cloth and papier maché; in Uttar Pradesh, of clay as also in some parts of Bengal where it is abundant; places round about Gwalior excel in toys made of soft stone and wood; and it is not surprising that in the south, toys are frequently made of sandal-wood.

Figures made of clay and suitably painted and dressed in appropriate clothes are the most common in this country, the chief centres being Krishnagar, Calcutta, Poona, and Lucknow. Fruit is also modelled in clay, especially at Savantwadi, Agra, Lucknow, and the Belgaum district. It is said that the fruits made at Lucknow are so true to nature as often to defy detection without a close scrutiny. The clay figures and dolls of this place are also very life-like and are faithful representations of different tribes and people of the area. At Lucknow and other centres, small articles of use like vases, wall brackets, etc., are also manufactured and sold quite cheaply, but these do not have a very popular appeal — at least they are not as much in demand as the clay figures and fruits. Excellent painted toys of baked clay in the form of animal and human figures are also made in certain districts of Madras and Andhra States.

As to the models of fruits and vegetables and figures, some authorities put those of Lucknow as the best in India :

"These models are at once the cheapest and best of all those made in India, being acknowledged superior to those of Krishnagar and Poona. Every conceivable fruit and vegetable is imitated, from a huge bunch of plantains or a jack fruit to a dried onion, and the colouring is very realistic . . . These celebrated figures differ from, and are superior to those of Krishnagar, from the fact that the modellers do not use actual hair, wool, pieces of clothing, and other accessories for their decorations, but use clay instead, which gives them greater durability. The larger figures are realistically coloured, while the smaller and cheaper ones are coated with red ochre, which, when dried, presents the appearance of Italian terracotta. Moulds are used for the trunks of the figures alone. The artists model the head and face, the curves of the body, and the limbs with their fingers and a graving tool." (H. R. C. Dobbs.)

Among Indian folk toys, the figures of animals and birds predominate, often richly coloured and very true to nature. We find among them cows and horses, parrots and peacocks, domestic and wild animals. The horse and the camel are special favourites in Rajasthan, just as the elephant is in South India. Then we have the different modes of travel, bullock carts, the pony *tongas,* and the *shikaras* (boats) of Kashmir. Household utensils and domestic vessels are made almost everywhere to delight the hearts of the girls, those of Madras and Mysore being the best. Bengal is well known for figures of musicians, animals and dolls, while from Manipur in Assam come gaily dressed dancers, suitably ornamented and life-like in action if not in expression.

It is believed that the toys of Kondapalli, about 15 miles from Vijayawada in Andhra Pradesh, are some of the best produced in India, being artistically finished and exhibiting fine workmanship. Made of wood, they include the figures of elephants with their *howdahs,* and representations of rural types of men and women. The light whitish wood used is the *tellapaniki* which is carved with a *barudaru.* The ancestors of the Kondapalli toy-makers originally came from Rajasthan under the pressure of persecution. But today only a few families still practise this ancient and delicate craft, so soon doomed to disappear unless it receives substantial Government support. Other centres noted for their artistic rural toys are Banaras, Calcutta, Tanjore, Agra, Murshidabad, Orissa, Savantwadi, Nasik, Mathura, Madras, Mysore, Tiruchirapalli and the Travancore area.

"Indian toys are often very beautiful," observes Sir George Birdwood. And he continues : "Among the Prince of Wales' presents are two models of carriages, one drawn by cream-coloured bullocks, and the other by cream-coloured horses; both looking as if they had just stepped out of an illuminated page of the *Ramayana* or *Mahabharata.*"

Perhaps the making of traditional toys owes its origin and inspiration to folk art, the *rangoli* of Western India and the *alpona* of Bengal, the symbolic designs drawn before the threshold on auspicious occasions. The toys, whether of clay or made of wood or metal, are of the very essence of folk art, and even in the villages, horses, cows, goats, carts, and objects of country interest are made for the delight and amusement of the village children.

Speaking of the folk toys of India, Ajit Mookerjee says : "A toy made by a village woman in India even today is essentially timeless. It has the impress of an ageless type which persists through periodic variations. Such types are modelled by hand and never with the help of mould." In the villages, clay toy making is a collective effort, from the gathering of the clay, till it is baked or fired and coloured, and in the house of every village potter, a small kiln is set aside for the women and the children of the family for the making of dolls and other toys.

Clay or terracotta toys are either sunbaked or fired in a primitive kiln heated by a slow fire of rice husks. As the firing proceeds, the chemical components of the clay change, producing different shades of ochre and orange. The best temperature for the firing is generally from 800°C. to 1000°C., but it should never be so high that the clay turns grey or black. However, sometimes, a black colour is desired and then the figure or toy is subjected to a smoke-bath, or covered with cocoanut husks set alight with charcoal. When other colours are required, pigment made of earth-colours like ochres are applied as a slip to the clay.

The hand-made clay folk toys of Bengal are made just as a child models in plasticene, by working the clay till the desired shape is achieved. The figures are baked either over a slow fire made up with rice husks or merely dried in the sun. Sometimes the figures may be painted, but the true folk toys are not. "These figurines are crudely made, flat at the back and with a semblance of curvature in the front only. The arms are usually shown extended. And although the female figure may be incised as if she were wearing a girdle, in most cases they are shown as nude. There is no attempt at anatomical accuracy or at refinement. Though commonly about three to five inches in height, they may be as large as one foot."

As stated elsewhere, nowadays mass production of clay toys is made possible by the use of moulds, enabling a large number of "copies" of an individual design to be turned out quickly. Of course, the original mould is hand-made and often is passed on from father to son in a potter's family. "Between the product of the mould and the finished ware there lies a whole world of traditional craft which operates as a co-ordinating force," says Ajit Mookerjee. But even in the mould-made toys, the potter's own artistic sensibilities play a part : in the putting in of the details and his sense of colouring that ultimately animates the figures and gives them life and a sense of reality. As Ajit Mookerjee observes, "Colouring also is the principal means by which an enchanting world of make-believe for children is created, where an elephant can be green, a horse blue, and a cow a combination of green, red, blue and yellow."

As said above, mass production is the result of the use of moulds, but sometimes only the heads may be thus produced, and the bodies modelled by hand. The mould is first dusted with fine sand and the required amount of plastic clay pressed into it, the sand preventing the clay from sticking to the mould and allowing the mould-cast figure to be subsequently removed with ease. This is next baked in the sun or fired, and then finally painted. The colours seem to animate the figures and often confer a sense of humour on them. It is said that of all "the many representations of animals by the potters, the cow and the calf, horses, birds and elephants bear the mark of a very old continuous tradition."

The colours generally used by the toy-makers in clay are ochre (*gaurika*), lampblack (*kajjala*), black (*krishna*), orpiment (*harital*), indigo (*nila*), green (*harit*), and an orange-ochre (*mete-sindur*). The colours are applied over a white coating of chalk after mixing with a gum, chiefly obtained from the bael tree (*Aegle marmelos*) the neem or Margosa tree (*Azadirachta indica*), or a paste made of the seeds of the tamarind (*Tamarind indica*). To give durability and polish to the painted clay, the toys are varnished with garjan oil, a mixture of resin, lac, and incense ; and powdered mica may be sprinkled over certain parts of the figures before the varnish has dried to provide glitter.

A rather interesting fact about clay folk toys made in the traditional designs — not the modern ones for sale in the cities and the towns — is that they are never finished on the reverse. However well modelled and painted the front may be, the back is always kept simple and unadorned. The same fact is to be seen in the simple toys of the American Red Indians who believe that this helps their own children to reach a ripe old age. Could a similar belief have existed in ancient India ? We do not know, and there is no reasonable explanation why the clay dolls and figurines made in the villages even today should show this lack of finish on the back.

Ajit Mookerjee has pointed out the peculiar characteristics of the hand-modelled terracotta figurines and dolls, those which he classifies among the ageless type : "The separation of the legs by an incised line, the two legs together tapering almost to a point — while the main characteristics of the moulded ones are : They are generally round-faced ; their bodies are not built up from separate parts ; they have elaborate headdresses and are lavishly ornamented, the jewelled girdle remaining a constant feature ; despite clothing or suggestion of it, details of sex are shown, though indication of pubic hair is rare. In one interesting case nudity is suggested by inserting a grain in the mould at the mount of Venus. Female types dominate this group." (cf. the many terracotta figurines discovered at such ancient sites as Rajghat, Kosam, Mathura, Pataliputra, Besnagar, Taxila, Sari-Dheri, Lauriya-Nandangarh, and Ahichchhatra — belonging to a period extending almost from the pre-Mauryan age to the time of the Imperial Guptas.)

In his *The Arts and Crafts of India and Pakistan,* Shanti Swarup writes :

"Clay is a cheap and easily manipulated material for modelling, with which we have for ages made dolls and images of great beauty of design and execution. Before the Vedic deities filled the temples, the primitive non-Vedic gods, the Yakshas and the Yakshanis in the forms of pretty clay toys satisfied the craving of the human soul for the Divine, and then later on shared in the temples the devotion offered to the Puranic gods and goddesses. The Mohenjo-Daro and Harappa excavations show a highly developed clay doll-making art at a period of history about 2500 years

before Christ. Among the earliest surviving dolls dug up at Mohenjo-Daro are a pottery toy of an animal with a movable head, a monkey nursing a baby and a little toy bird with its beak open, evidently singing. The figures are imbued with life and expression and their poses and actions are excellent. There is also a reference to a painted clay doll of a peacock in Kalidasa's *Shakuntala,* and in the 'Clay Cart' of Shudraka we are referred several times to a clay cart toy."

Apparently this supremacy of the ancient Indian worker in clay has descended to the craftsmen of today, for they still exhibit a deft skill in the art of clay modelling. Though clay figures and toys are made in many places, especially in Uttar Pradesh and the Bombay State, the craftsmen of Bengal particularly show a talent of a very high standard in the plastic arts, "which demonstrate that among the poor illiterate village potters of Bengal there still survives a precarious art tradition inherited from the master artists of medieval Bengal by virtue of which they can produce, out of the humble native clay of Bengal images which throb with life and movement and exhibit as high a degree of plastic genius as has ever been found in any sculpture wrought out of the more aristocratic medium of stone or marble." (G. S. Dutt.)

The potters of Krishnagar produce admirably modelled figures and toys, perfect in detail, and brilliant in colouring, the most popular representations being Lakshmi, the goddess of wealth, Ganesh with his elephant head, Saraswati with her *veena,* fishermen, peasants, farmers, shepherds — all in their typical costumes, however little that may be. Actually, the figures are not individually modelled, but are made from plaster of paris moulds. But in each figure the details are worked in by hand and the costumes made or woven to fit perfectly. Accessories like the fish-net or the farmer's hoe are also skilfully made from pieces of bomboo, wood and string.

Toys made of wood, ivory, and metal have always been popular in this country, and apparently have a very ancient lineage. In early classical literature there are to be found many references to the *danta-puttalika* (ivory doll) and the *loha-puttalika* (metal doll). During the excavations of the buried city of Pompeii, a beautiful ivory doll, datable to the first century A.D., was found and it is now believed that it had been taken to Italy from India by Roman traders. At present, toys in ivory and sandal-wood and religious images in the same materials are made in Mysore. Among other things, one will find peacocks, caparisoned elephants, tigers, cows, all in the round, and ceremonial, mythological and festive scenes carved in low relief.

Banaras has always been famous for her painted wooden and brass toys ; the craftsmen of Madurai and Bellary even today make beautiful toys from teak and redwood. The painted wooden toys of Kondapalli in the south are justly famous for the beauty of their colouring and their inherent charm. "The Howdah or the Ambari elephant toy is one of the most popular. The caparisoned elephant and the men riding on it, sets of different figures representing village life, and also models of animals, Kolattam dance, temples, huts and incarnations of Vishnu, have each been magnificently painted in typical old Indian range of colours, brick-red, ochre, olive green, indigo, and black, displaying excellent plastic quality." (Shanti Swarup.)

In Bengal, the wooden toys and dolls are made with a particularly interesting economy of form and decoration. The dolls are roughed out from solid wood and then painted in the difierent colours on a white base. The overpainting is in bright and lively hues, with special emphasis laid on certain parts of the body. The old Bengali tradition is followed in the treatment of line and the use of colours — the usual colour scheme being made up of red, black, and blue, yellow forming the general body-colour. Lac varnish is usually applied to preserve the colours and provide durability to the toy. Often these Bengali wooden dolls remind one of the coffins in which Egyptian mummies used to be laid, so far as the shape and form are concerned. Male dolls are rarely made, the emphasis always being on the female.

Crude are the toys made of wood in certain regions of Hyderabad, now in Andhra Pradesh. Chiefly animal figures of a grotesque shape and with unnatural colours are produced. Roughly carved out, the wooden shape is further modelled by applying to it a clay-like compound of cowdung or saw dust mixed with glue or tamarind pulp. When dry, the figures are unsuitably coloured, till the animals look like anything but what they are really supposed to be !

Generally speaking, wooden toys, popular everywhere, are made of a light kind of wood, suitably carved and painted, and represent scenes from actual life, animal figures, human beings in appropriate costumes, men and women representing the various occupations, etc. Toys made of pith are also commonly produced.

The metal toys are chiefly made of brass and hence are rather heavy. The common kinds include bullock carts, temple *raths,* scenes from the Hindu mythologies, and representations of rural and urban activities. Really, they are more suitable as mantlepiece decorations or paper-weights than as toys meant for the delight of children. But the Indian girl usually finds fascinating the miniature pots and pans and other kitchen utensils with which she can amuse herself for hours, pretending to be a young housewife — just like her mother !

The making of metal dolls and toys is at present restricted to a few localities, probably due to the laborious process involved, and the experience, knowledge and skill that may be slowly dying out. Perhaps, competition with cheap factory-made pressed toys is too great. The process used is the "lost wax", at least as a rule. But a rather interesting method, almost extinct elsewhere, is still used by the Mals, a small sect living in Bankura and surrounding districts.

The Mals first model the figure roughly using a special type of clay composed of soil and loam obtained from anthills and rat holes, mixed with sand and rice

husks — the latter two probably prevent undue cracking of the mixture when fired. The figure is then given a coat of melted wax and threads coated with a mixture of resin and wax are applied to the body to form the details. The whole figure is next covered with many layers of the special clay described above with an admixture of finely chopped jute fibres. A hole is now made at the top through which small pieces of metal are inserted, the mould being kept at an angle during the firing. When heated and smoke issues from the hole, the mould is immediately turned upright and left to cool overnight. When ready the cast is removed.

These metal figures of Bankura have a very distinct resemblance to the Benin bronzes of West Africa. The Bankura-Singbhum area produces the finest iron and copper ore. "Was it one of the sources on which Mohenjo-Daro drew?" wonders Ajit Mookerjee. "Were the bronze figurines of this type found at Mohenjo-Daro actually made there or transported from elsewhere?"

Cloth toys are also made in many parts of India, especially richly dressed cloth dolls which are very popular with Europeans, and marionettes worked by strings. They are durable and their bright colouring and costuming lend them a peculiar appeal of their own.

"It is a curious phenomena that in India, by the side of the ultra-modern toy, there exists the traditional indigenous handmade toy, with a history of its own," writes Mrs. K. S. Dongerkery. "The vastness of the country, the economic inequalities of her people and the love of tradition inherent in them have been responsible for some of the traditional things continuing from generation to generation in India." She goes on to say : "In short, the toys of India represent in miniature the various aspects of Indian life. They also serve to foster the aesthetic and mental development of the child, without conscious effort, through instinct and experience rather than through the application of scientific principles to the education of the child . . . The absence of children's story-books must have been more than compensated for in the past, as it is even at present, by the variety of instructive toys available to the poorest of the poor at a very low cost."

The idea expressed above bears thinking about. In India, folk toys have never been just for amusement. Their functions were many, perhaps the most important being to help in the development of the child into a well-integrated adulthood.

Besides, Indian folk toys, especially the ones in clay, were and are also used for religious purposes. They may play a part in fertility rites, ceremonies to ward of epidemics, for the purposes of exorcism. And in view of their fertility value, it is not surprising that the figures of the Mother and Child are the most popular of the clay folk toys in this country. As Ajit Mookerjee says, "In these the mother expresses herself in the most universal manner. The feet, the thighs and belly give power and elasticity to both the standing and the sitting mothers, as each with primordial tenderness embraces her clinging offspring. There is a total disregard of accuracy in anatomical detail, but in each case, the mother is warm and full of life, possessing a natural, quiet distinction, an aloof pride in fulfilment . . . Most of these dolls are nude, and some of the sitting mothers are distinctly steatopygous." (*Marg,* IV, 4.)

It has also been contended that these nude figurines represent the goddess of fertility. In the words of Dr. Ananda Coomaraswamy : "We can safely assert that the Indian nude goddess was a goddess of fertility, for this is written unmistakably upon her image, that she was a popular and perhaps the greatest of the many non-Aryan feminine divinities who later on were gradually and only with difficulty merged in the Brahmanical and Buddhist pantheons as Sakti, and she is in the last analysis identical with the Great Mother, the Supreme Devi of the Tantras."

Other traditional folk toys of India are the wheeled figures of horses, the axles of the wheels supporting the front and hind legs. The eyes are pictured primitively with pellets of clay with lateral depressions in the centre to represent the iris, and the tail turned up to give an impression of fiery vigour and strength. The animal and bird figurines have also played a dual role in the life of the rural communities — as playthings for the young, and as objects of dedication to the village gods and goddesses.

To conclude in the words of Ajit Kumar Mookerjee, "A systematic study of Indian dolls and toys can be a fascinating incursion into our cultural patterns, revealing historical and psychological trends of great importance. In fact, folk toys are in a way the autobiography of the Indian people." (*Pushpanjali,* Vol. II, 1958.)

HAND-WOVEN TEXTILES OF INDIA

Of all the art-manufactures of India, her beautiful textiles are certainly the oldest. The discovery of fragments of finely woven madder-dyed cotton fabrics and bobbins at Mohenjo-Daro traces back the antiquity of Indian textiles to over 4000 years, long before the days of the Aryan penetration into the country. The Seleucid envoy Megasthenes (c.302-298 B.C.) at the court of Chandragupta (Sandrocottus) has mentioned in his detailed account of India that in those days the Indians wore flowered muslins of the finest weave and the ruling classes were clad in robes embroidered in pure gold : "In contrast to the simplicity they observe in other matters they love finery and ornament. They wore dresses worked in gold, adorned with precious stones, and also flowered robes of fine muslin."

The products of the ancient weavers of India have been compared to "exquisite poetry in colourful fabrics," and there was hardly a trick of the weaver's art that was not known to them. It is now generally admitted that in the whole world, India was perhaps the first to perfect the art of weaving and that her gossamer-fine muslins and sumptuous brocades of gold are probably older than the Code of Manu.

Even in the very ancient *Rig Veda* there are references to weaving, and the language of one hymn to Agni, the god of fire, is the language of the craft of the loom : "Oh, I know not either warp or woof, I know not the web of thy weave." Again, in the Vedas we find references to Usha, the goddess of the Dawn, "clothed with radiance"; and in another hymn we read, "Day and night spread light and darkness over the extended earth like two famous female weavers weaving a garment." Let us not forget that one of the oldest epithets of Vishnu is *pitambara* — "clothed in yellow garments."

By the time of the great Epics, the art of weaving had reached a high stage of perfection. Here we find references to the shining golden cloak, the *hiranyadrapi*, and the *manichira*, as far as we know a fabric of South India with a woven fringe of pearls. In the two great classics, the *Mahabharata* and the *Ramayana*, woven cotton, silk and woollen fabrics are constantly mentioned, "gems and gold and costly garments, slaves and damsels passing fair."

Among the wedding presents given to Sita by her father were furs, woollen garments, fine silken clothes of various colours and precious stones. The *Mahabharata* tells us of the gifts brought to King Yudhisthira by the feudal princes — furs from the Hindu Kush, woollen shawls of the Abhiras from Gujarat, and cloths made of the wool of sheep and goats, and of thread spun by worms, fabrics of plant fibres woven by tribes of the North-Western Himalayas, pure muslins being the gift of the people of Gangam, the Carnatic region, and Mysore.

The Code of Manu makes frequent mention of the art of weaving and dyeing. The ancient temple sculptures represent women dressed in embroidered or brocaded cloaks and in muslins so fine as to expose the contours of their bodies, only the lines of their folds or the edges being represented to show that the female forms are in reality fully garbed. But perhaps this is only an artistic license, a form of sculptural stylisation.

In the magnificent Ajanta frescoes the women's garments are often painted blue, perhaps a colour always popular with the Hindus for their poets have often sung of the charm of a pale-complexioned damsel dressed in blue being like "a dark cloud lighted up by the radiant fire of beauty." In these ancient murals of Ajanta and also of the Bagh caves we find indications of different designs of weaving, such fabrics like the *bandhani* and the warp-weft tie-and-dye (dealt with in the chapter on dyed fabrics), representations that seem to be that of brocades and figured muslins. "The prominent designs found at Ajanta are bands alternately filled in with geometrical patterns, such as chevrons, stripes, circles, and checks ; formal floral motifs or scrolls entwined with processions of hamsas or simhas ; dot patterns and diagonal bands of geese. Poets have waxed eloquent over these bird designs, Kalidasa describes Parvati's dress in the following words : 'How shall I praise thy robe with gay flamingoes gleaming?' Bana sings of 'Her two silken garments white as the foam of ambrosia, with a pair of geese in yellow on the hem.' " (*Designs in Indian Textiles.*)

To give an example, in Cave I at Ajanta, a fresco illustrating a jataka depicts geese and other animals forming the motifs of a richly decorated dress ; in still another (Griffiths, Pl. 13), the young lady fanning an important personage on horseback is shown clad in a fine fabric with a diapered design formed of rows of geese. The geese motif also appears on the clothes of the frescoes of Cave II.

Sometime in the early fifth century A.D., a temple was built in Malwa by a guild of silk-weavers and dedicated to the Sun-god Surya. It was apparently repaired in A.D. 473-74 and a memorial inscription of the time records how "a woman, though endowed with youth and beauty and adorned with golden necklaces and betel leaves and flowers does not go to meet her lover in a secret place until she has put on a pair of silken cloths, so the whole of the region of the earth is adorned by the silk weavers as if with a garment of silk, agreeable to the touch, variegated in colours, pleasing to the eye . . ."

In the fourteenth century, Muhmad Tughlaq is reported to have employed 500 expert weavers at Delhi

to weave silk and gold brocades for the ladies of the court and as royal gifts. During Mughal times, the court always had provision for the manufacture of costly fabrics and garments and so great was their charm and reputation that the finest products from China, Persia and Europe could stand no comparison with them. There is little doubt that the rich fabrics of Babylon, embroidered in gold and colours, were the original brocades of Banaras, Ahmadabad, and Murshidabad, as probably also the golden veil of Hephaestus described by Homer,

"Whose texture e'en the search of gods deceives,
Fine as the filmy webs the spider weaves."

And today, there is perhaps no village in this whole vast sub-continent that has not its own colony of caste weavers, each member sitting besides his simple loom weaving out the traditional beauty of India's precious heritage.

In the words of Pupul Jayakar : "To discover the sources of their inspiration and to comprehend the inherent significance of the vast fold of Indian fabrics, they should be seen in context, against the social and historical background from which they have emerged and on the dark-toned bodies of the people for whom they were made. For in India, textiles have rarely been concerned with fashion or individual separateness and uniqueness ; rather garments have always been only one part of a complex ritual of life, one aspect of a preordained milieu in which man is born, grows to texture, and dies." (*Textiles and Ornaments of India.*)

So many and so diverse are the cotton and silk textiles of India that they would need a whole book to do them justice. In this chapter, therefore, only the more important and widely known art-fabrics, hand-spun and hand-woven, will be dealt with.

Year after year, the number of power looms is increasing in the country. And in spite of the feeble efforts of many to encourage and revive the hand-loom industry, it has received a death-blow from which it is never likely to recover. The beautiful textiles of old and the lovely traditional designs may continue for some time more to be produced as art-fabrics for the discerning few ; but they can never again compete with machine-made products to clothe the masses of India. But one can take consolation in John Irwin's sober words : "The history of art is the history of man's struggle to humanise his conditions. Since the machine has come to stay, the central problem is surely how to evolve the new forms appropriate to it."

INDIAN COTTON TEXTILES

The hand-woven cotton textiles of India have always been in great demand and freely exported since very olden times to the far corners of the then known world ; and none more so than the exquisitely fine muslins, with sweet-sounding and graphically descriptive names like *abrawan** (running water), *shabnam* (evening dew), *sarbati* (sweet as sherbet), and *baft-hawa* (woven air) — terms so poetically descriptive of utter loveliness of warp and weft — all generically classed under the term, *malmal khas,* or "King's Muslins."

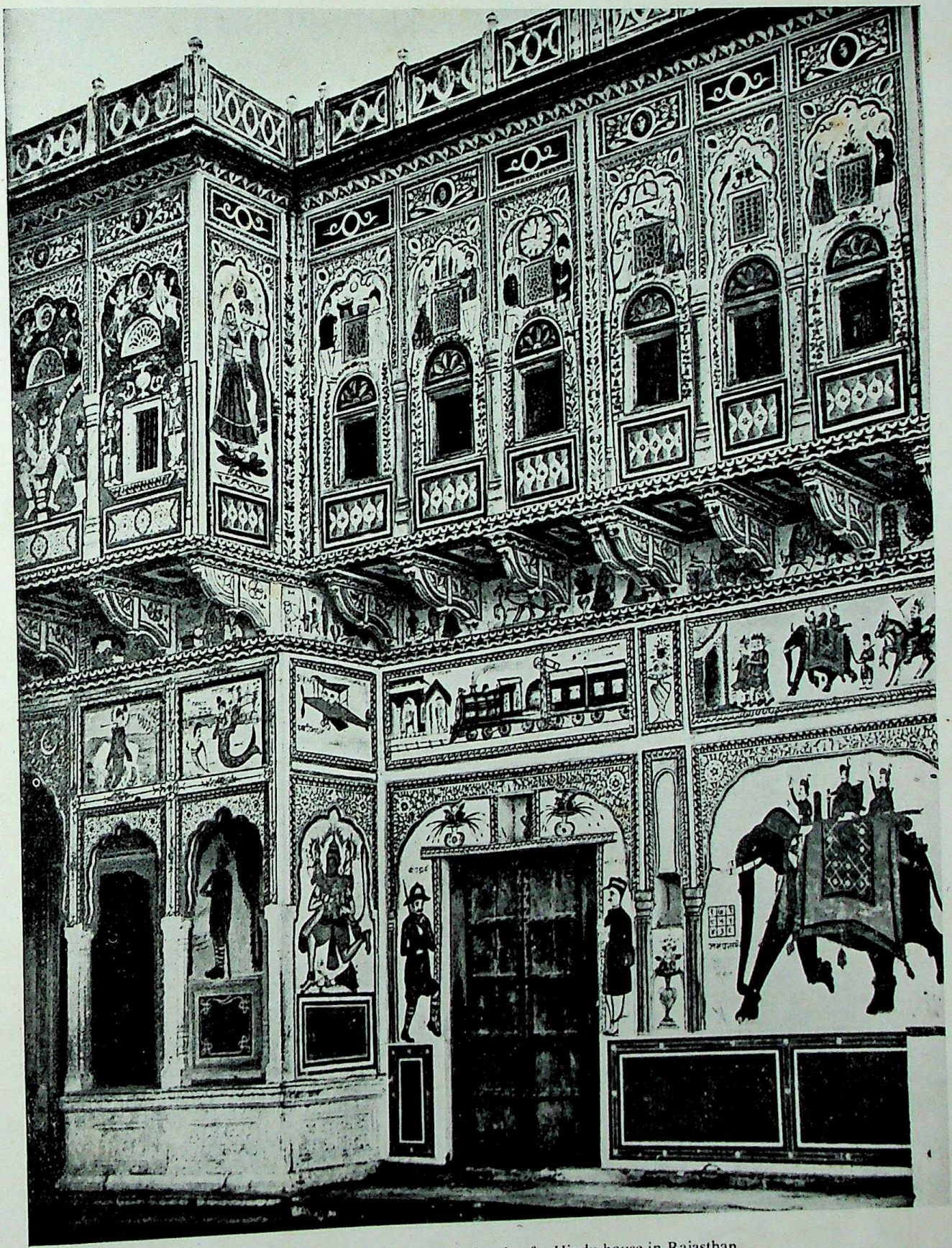
It is said that so gossamer-fine used to be the muslins of India that once Princess Zeb-un-Nissa was seen in public apparently dressed in nothing. Her father, the Emperor Aurangzeb, rebuked her severely for thus desecrating the dignity of the royal Court. The Princess calmly retorted that not only was she fully clad but had actually wrapped the muslin garment seven times round her slim body ! So fine was the *shabnam* of Dacca that when laid wet on grass it was invisible to the eye, hence its name "evening dew." And, it is said, the *abrawan* also was so filmy that if thrown into a stream it could not be seen under the surface of even quiet and unruffled water.

The celebrated Dacca muslins are now a thing of the past. The chief centres of muslin manufacture today are Banaras, Dacca, Hyderabad, Jaipur, Mysore, Kotah, Gwalior, Arni, Indore, Madurai, and Tanjore. The *dorias* or striped muslins are a speciality of Dacca, Gwalior, Hyderabad, Nagpur and some other places. From here as well as Nellore come the checkered muslins or *charkana,* and the figured *jamdani* from Dacca. The flowered muslins have small flower sprays worked on them with unequalled delicacy of touch, all arranged in many diverse ways but always producing a most delightful effect. Mention may be made of the embroidered muslins of Calcutta known as *chikan,* the printed muslins of Tiruchirapalli (Trichinopoly), and the gold and silver printed fabrics of Gujarat, Jaipur, Hyderabad, and the Deccan plateau.

In his *The Textile Manufactures and the Costumes of the People of India,* Dr. Forbes Watson has described the process by which the gold and silver printed fabrics are made. The decoration is produced "by stamping the desired pattern on cloth with glue ; the gold or silver leaf, as the case may be, is then laid on, and adheres to the glue. When dry, what has not rested on the glue is rubbed off." This will be dealt with in greater detail later on in the chapter.

The muslins of Dacca have rightly been famous for centuries and justly considered the masterpieces of the Indian weaver in cotton, for the extreme delicacy and the great beauty of the Dacca muslins of old stand unsurpassed. Dr. James Taylor, who had made a deep study of this industry, has recorded : "A skein which a Native weaver measured in my presence, in 1846, and which was afterwards carefully weighed, proved to be in the proportion of upwards of 250 miles to the pound." (*Descriptive and Historical Account of the Cotton Manufactures of Dacca.*) The excellence of the fabric depends upon its length and the number of threads in the warp as compared to its

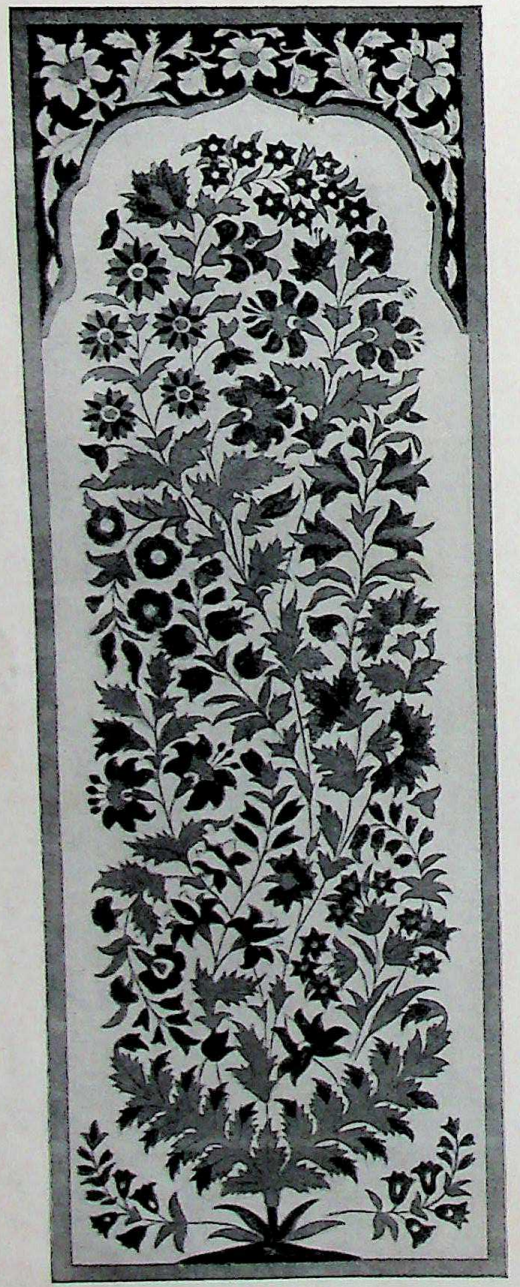
* Correctly *Ab-i-Rawan?*



Decorative *chunam* work on the facade of a Hindu house in Rajasthan.
(Photo : A. L. Syed)

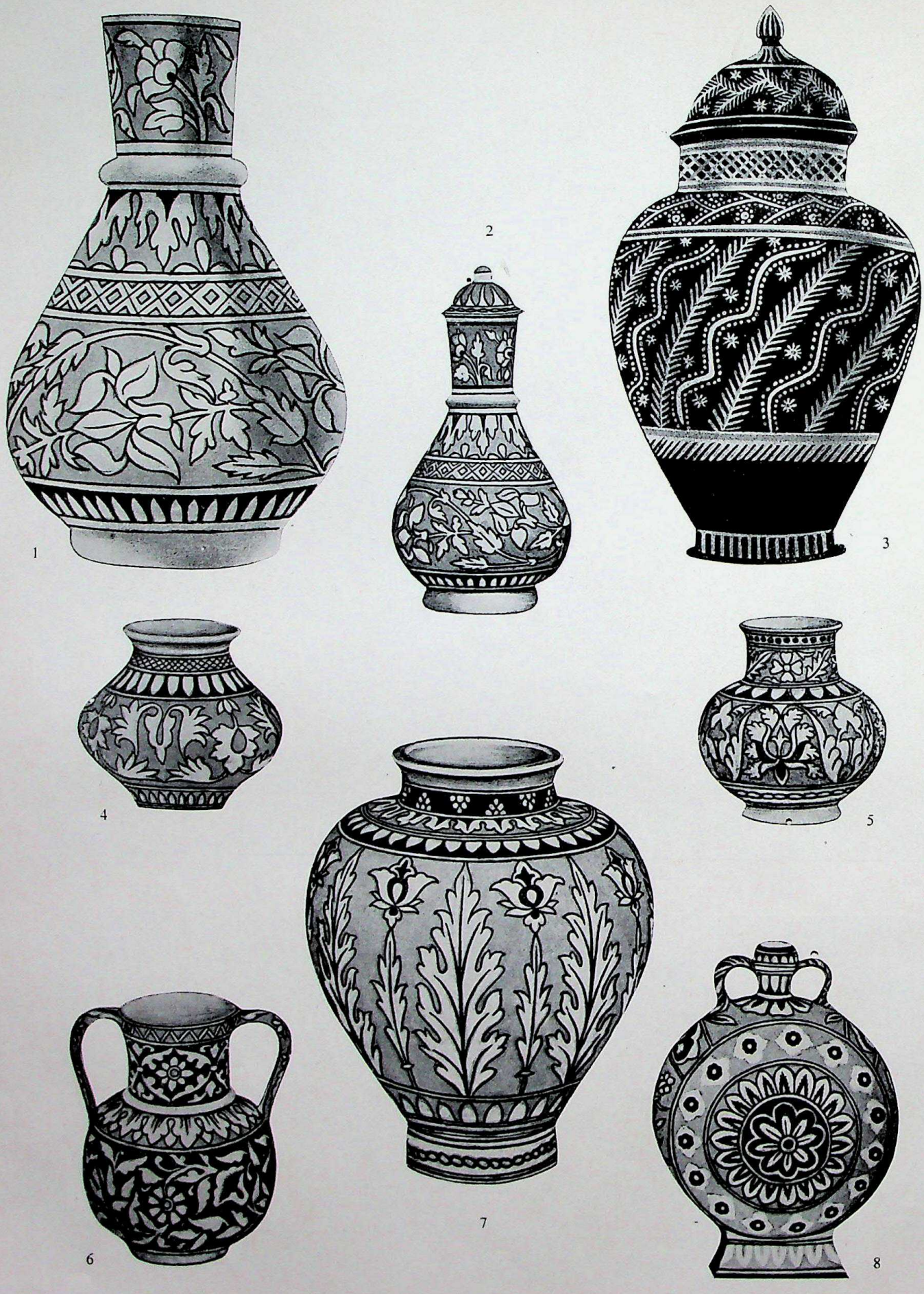
The village potter turning a pot with his deft fingers on a crude potter's wheel.
(*Photo : B. Bhansali*)

Unglazed, fretted pottery.
(*Photo: A. S. Vaswani*)



Encaustic tile from Multan. The design is in dark blue and pale green.
(From *The Journal of Indian Art and Industry*)

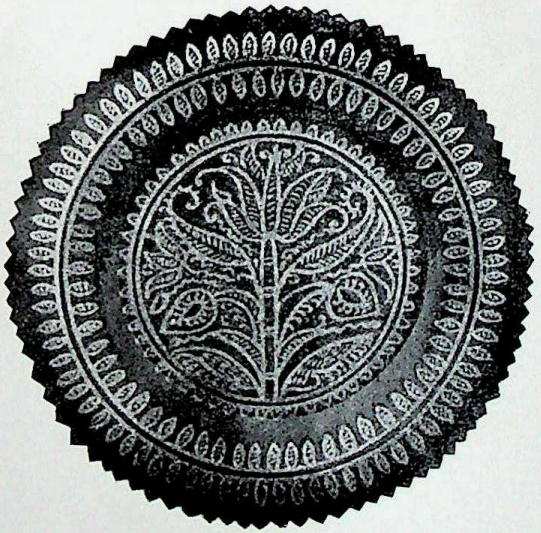
Hand-painted pottery, Bombay. Vividly coloured and varnished, the pieces form attractive and decorative articles for use or show.
(*Photo : R. J. Chinwalla*)



Representative shapes and designs of pottery made at the School of Art, Jaipur, in the last century. 1. flower vase with floral ornament ; 2. Surahi 10″ high ; 3. covered jar ; 4, 5. lotas each 6″ high ; 6. a two-handled flask ; 7. vase ; 8. water bottle about 12″ high.

(From *The Journal of Indian Art and Industry*)

Glazed earthenware *Martban*, a receptacle for preserves, etc., from Multan. The design is in white on a pale blue ground. Height, 15½″.
(From *The Journal of Indian Art and Industry*)



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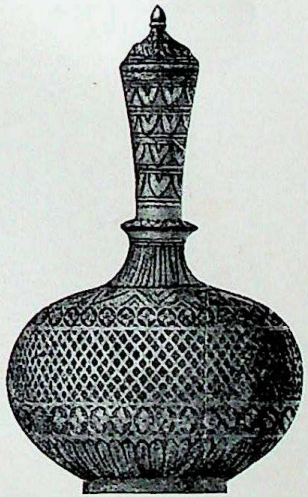

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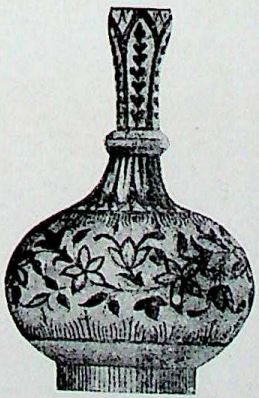

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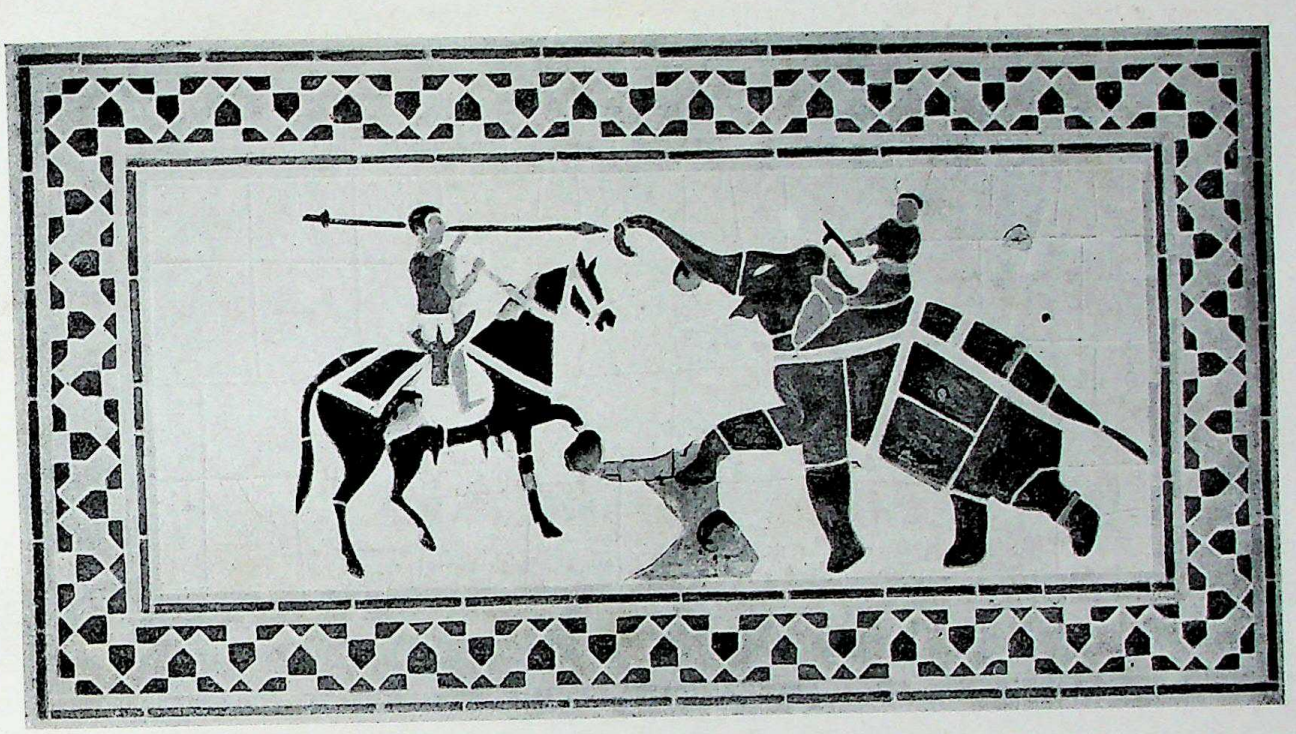
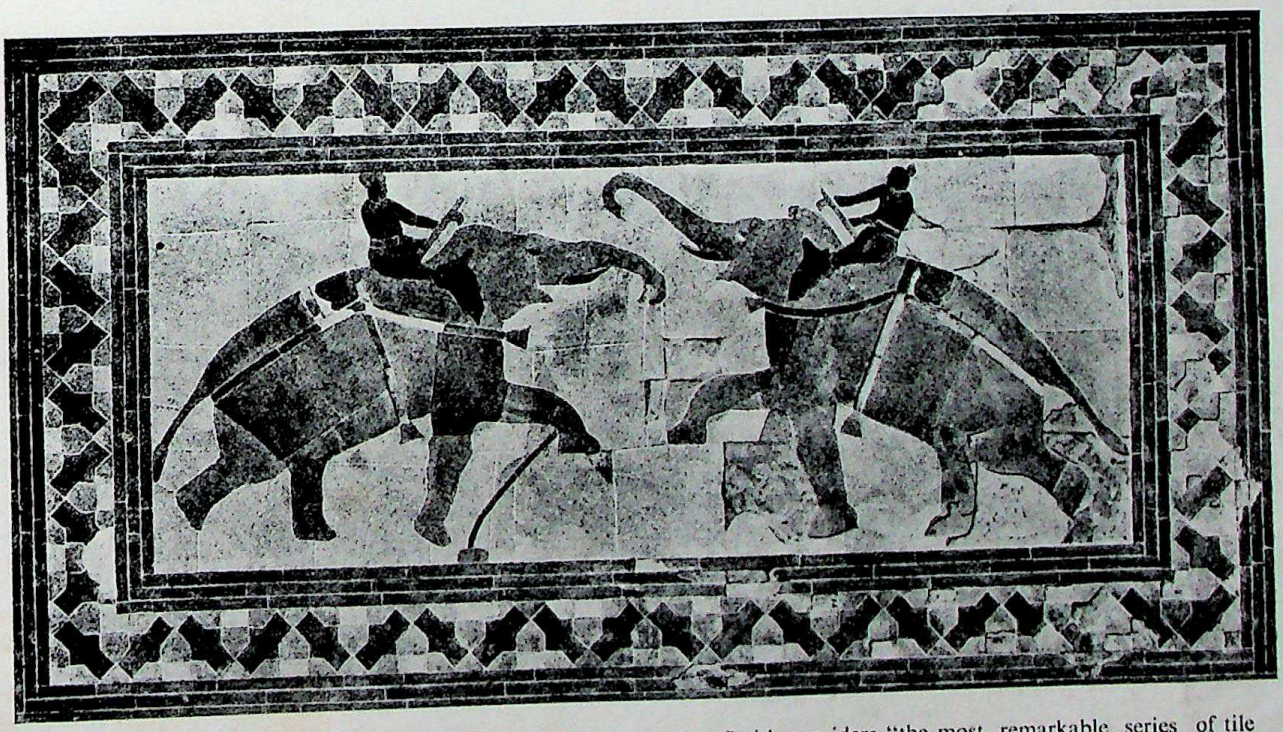
1, 2, Two examples of blackish Azamgarh pottery. The design is engraved and filled in with an amalgam of tin and mercury. 3, Ornamental unglazed Lucknow pottery with a simple geometrical design. 4, Glazed pottery of Rampur. 5, Bulandshahr glazed pottery.

Unglazed painted pottery ware from Bombay.

Delhi black pottery in modernistic shapes.
(*Photos : A. S. Vaswani*)

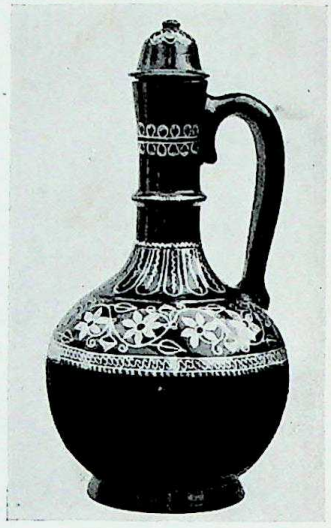




Tile mosaics from the Lahore Fort, 17th Century, which Vincent Smith considers "the most remarkable series of tile pictures in the world." The upper panel shows a horseman facing an elephant whose attack he calmly awaits with the lance poised for instant action. The lower panel depicts an elephant fight, so popular with the Mogul rulers. The beasts are depicted with all the vigour possible in this rigid form of art-craft, as compared to the lifeless horse of the upper panel.

(From *The Journal of Indian Art and Industry*)

Below : Pottery of Jaipur with the design in light blue on a dark blue ground.



Above: Unglazed, stone-polished black plate and handled jar with etched designs in silvery-grey amalgam, reminiscent of the pottery of Azamgarh.

Unglazed, hand-painted pottery in traditional shapes.
(*Photos : A. S. Vaswani*).

weight, the greater the length and the number of threads and the lower the weight, the better the fabric.

Sir George Watt points out : "A popular method of testing fineness was to ascertain if the piece of cloth could be passed through a lady's finger ring." Further, in the time of Emperor Jahangir, muslins 15 yards long by 1 yard in width, were made that weighed only 900 grains. Tavernier has stated that the ambassador of Shah Safy (A.D. 1628-1641), on his return from India, presented to his master a muslin turban 30 yards in length, so exquisitely fine that it could scarcely be felt by the touch.

The famous *malmal khas* or "King's muslin" could be made in lengths of 10 yards and one yard in width, containing from 1000 to 1800 threads in the warp. These could only be made during the rainy season, the moisture in the air allowing the very fine thread to be woven, and would take a weaver almost five months to complete. How rightly has Dr. Watson said, "With all our machinery and wondrous appliances we have hitherto been unable to produce a fabric which for fineness and utility can equal the woven air of Dacca."

More beautiful still are the figured muslins — the *jamdanis* — "from their complicated designs they have always constituted the most expensive productions of the Dacca looms." (Watson.) The *jamdani* may be called a product of the shuttle in which the designs are inserted by hand during the process of weaving, and producing the effect of embroidery. As in tapestry weaving, small bobbins or shuttles filled with coloured, gold or silver threads, are passed through the warp, the weaver producing the exquisite designs by the skilful use of the bobbins in the course of the intricate weaving. No wonder the best *jamdanis* of old are today the prized heirlooms of many a Bengali family.

In view of the importance of this superfine fabric, Dr. James Taylor's description of the process of weaving these figured fabrics deserves a full quotation :

"In manufacturing figured fabrics, two weavers sit at the loom. They place the pattern, drawn upon paper, below the warp, and range along the track of the woof a number of cut threads equal to the flowers or parts of the design intended to be made ; and then, with two small fine-pointed bamboo sticks, they draw each of these threads between as many threads of the warp as may be equal to the width of the figure which is to be formed. When all the threads have been brought between the warp they are drawn close by a stroke of the lay. The shuttle is then passed by one of the weavers through the shed, and the weft having been driven home, it is returned by the other weaver. The weavers resume their work with their pointed bamboo sticks, and repeat the operations with the lay and shuttle in the manner above described, observing each time to pass the flower threads between a greater or less number of the threads of the warp, in proportion to the size of the design to be formed."

A description by another authority amplifies this considerably :

"The long warp threads being arranged, the weaving is begun as in the case of a piece of ordinary cloth, and a pattern of the embroidery drawn on paper is pinned beneath. As the weaving goes on, the workman continually raises the paper pattern to ascertain if his woof has approached closely to where any flower or other figure has to be embroidered, and when the exact place is reached, he takes his needle (i.e., a bamboo splinter), and as each woof thread passes through the pattern, he sews down the intersected portion of it, and so continues until it is completed. When the embroidered pattern is continuous and regular, as in the usual sari border, the weaver, if a skilful workman, usually dispenses with the aid of a paper pattern."

It is believed by some that the designs commonly seen in these beautiful art-fabrics are of Persian origin. But it must be remembered that flowered and figured muslins were common in Bengal when Megasthenes, the Seleucid envoy, lived at the court of Chandragupta, and so the weaving of the figured *jamdani* must be an indigenous craft, even if the designs are taken to be of foreign origin.

The fabric is generally grey cotton, embellished in bluish-black designs or sometimes in brilliantly coloured cottons or gold and silver thread. When the fabric is intended for a sari, the ends may have large bold motifs in the corners, mostly variations of the cone or shawl pattern. The field of the sari will have small sprays of flowers, either scattered all over or arranged in diagonal lines. If scattered the sari is called *butidar,* but *tercha* if the sprays form diagonal lines. However, if the floral designs form a regular network, the *jamdani* is spoken of as the *jalar.* Perhaps, the finest of the figured muslins is the *panna hazara* — "a thousand emeralds" — in which the floral sprays present the same effect of hundreds of scintillating jewels in settings of gold and silver.

Among the other designs are the *phulwar,* in which a floral pattern seems to run all over the piece, and the *toradar* containing large and realistically depicted flowers.

The terms used to describe the designs of the *jamdani* are more or less the same as those used in other figured textiles, and some of the commonest are as below :

Buti — single flowers or sprays unconnected with one another.
Buta — as above when the flowers are large in size.
Turanj — the cone or shawl pattern.
Chanda — a circular buti.
Panbuti — a *buti* that is heart-shaped or like the leaf of the *pan.*
Fardi-buti — tiny sprigs or spots.
Tara-buti — star-shaped *buti.*
Buti jhardar — sprigs of flowers.
Jamewar-buti — large flowers arranged in rows.
Kabutar-khop — designs like pigeon holes.

Dora-kata — striped design.
Gopal-char — floral design.
Karela — fruit of the *Momordica charantia,* egg-shaped, accompanied by leaves and flowers.
Doria — striped.
Shaburga — spotted.

The *jamdanis*, embroidered with brightly coloured floss silks, have already been mentioned and they are called *reshmi karchopi* saris when intended for use as a sari. The embroidery may be in green, blue, purple, scarlet, or even gold, colourful yet generally in poor taste. A common design of this nature consists of large rosettes set in the interspaces of a diaper in bright green. Still cheaper *jamdanis* are worked on white with the bold wavy design in yellow, red, blue or black cotton. Or they may be woven on black with the large designs in white, yellow, orange, or green. Then we have the *donga kapur* of Chittagong in Pakistan, these being bluish-black muslins showing longitudinal warp stripes in green, orange, and Indian red. More artistic, however, are the *dorias* and *charkhanas,* both striped muslins, produced in many parts all over the country. Mention may also be made of the chequered and figured muslins of Gwalior, and the Chanderi muslins with borders in rich silk and gold, the former being double-woven to show two different colours, one on either side. Then there is the *jamdani* of Tanda in Uttar Pradesh. The fabric is a fine *tanzeb,* the pattern being further elaborated with a number of special weft threads drawn from a number of bobbins left hanging from the web at the different required positions to suit the pattern. These threads are passed through the desired number of warp threads two at a time as the heddles are raised and lowered, while the weft shuttle is passed from one side to the other and back again. Thus the design is produced on the surface of the fabric and so it is that in Indian muslins the pattern closely resembles fine embroidery.

Instead of silk, cotton threads may be used for the embroidery, and this goes by the general name of *chikan-dozi.* Mention may also be made of other Dacca textiles like the *jhappan,* woven on a vertical loom and embroidered with cotton and silk. The patterns are generally very pretty, often consisting of a "square chequer (diagonal) diaper of green double lines, the larger squares being charged with the figure of a split pomegranate, in maroon and gold colour; the smaller squares at the intersections of the double lines of the chequer bands have 8-foiled rosettes of alternate green and gold colour petals, the intervening band-spaces being filled with green (conventional) foliage." Other designs consist of an over-all scroll arabesque of flowers, fruits, and other foliage.

In certain regions of the old state of Oudh, a peculiar kind of muslin, which Sir George Birdwood calls *tanzeb,* was produced. He writes : "The weavers have a curious art of inweaving in it, at the time of manufacture, any design that may be suggested to them. Verses and sentences are most common, and these are varied to suit every taste and creed. Some are passages from the Koran, others from the Vedas, and others from Watt's moral songs and hymns."

Among cotton fabrics, mention should also be made of the yellow *pitambars,* the attractive *kanawez* or double fabrics of Aligarh, the *gabruns* or *nakhunas* of Agra with their white warp and the weft striped in various colours, and of course the charming damasks of Rampur. Fine cotton saris with silk borders and attractive end-pieces are made in Belgaum, Surat and Dharwar in Bombay State, and Bhandara, Chanda and Nagpur ; and blue *palampores* and *punjan* cloth at Nellore and Vizagapatam, both of which are very popular in the East Indies.

Karnal, Patiala and Ludhiana are known for their beautiful *kheses* (wrappers or robes); and the *lungis* (head or waist cloths) of the Ambala district, of Khot and Peshawar, are famous all over the East as also are the glazed *ghati* (diapers) textiles of Jullundur, with their subtle artistic appeal.

The woven cotton cloths of Jaipur and Jodhpur are noted for the brilliancy and purity of their colours and the large cotton *daris* of Rajasthan, striped in blue, black, red, green, and yellow are marvellous as examples of the Indian weaver's skill.

Regarding the cotton saris of Madhya Pradesh, some parts of which are today included in Bombay State, Arthur Blennerhassett has written in a monograph that each kind of sari has a special name according to its design, colour, and type of border. "Thus we hear of the *golabi rast* pink in colour ; of the red *lal sendri ;* of blue *udi popri* ; of the green *hirvi silari.* Some saris are striped, others checked ; some have coloured borders, some silver borders and some again golden ones. Among the most delicate of these fabrics are the saris of Burhanpur, with their variegated borders, interwoven with gold-plated thread *kalabathi.* Again, in Sambalpur, we have a sari called *phulia.* This is distinguished by a flowered border. Apparently peculiar to this district are the saris known as *hansabali kapta* and *hansabali datapar ;* the former is uniform in colour, and has a border of fanciful animals, such as fish, ducks, elephants ; the latter sari is similar, only that the designs of the border occur also in stripes throughout the body of the cloth." (*Cotton Fabrics of the Central Provinces.*) The *hansabalis* used to be considered the most artistic of the hand-woven textiles of Madhya Pradesh.

BROCADES AND SILKS OF INDIA

India's "fabric of dreams" is the brocade or *kinkhab,* generally wrongly misspelt by European writers as *kincob.* This inter-weaving of silk threads and gold wires in beautiful colours and floral designs produces the most gorgeous, the most fascinating of India's silk fabrics. Today, brocades are chiefly

Kashmiri scarf end, a beautiful example of harmonious blending of deep-toned colours. Possessing unequalled fineness, delicacy and warmth, the shawls of Kashmir have always stood very high in estimation in every market of the world.

(From *The Industrial Arts of the XIXth Century* by M. Digby Wyatt)

produced at Ahmadabad, Aurangabad, Surat, Bhopal, Delhi, Lucknow, Banaras, Murshidabad, Tanjore, Tiruchirapalli, and Madras ; but Banaras is their real home, in the Banarasi *kinkhab* the famous hunting scene (*shikargarh*) design being the finest of them all. Oudh's speciality was the creating of brocades with verses from the Koran and Hindu scriptures woven into them, thus making them very appropriate for religious purposes.

In olden days, silver and gold wires of such extreme fineness were drawn that the entire fabric could be woven from them, producing literally a "cloth of gold." The introduction of silk or a mixture of silk and cotton in the weaving of brocades is of fairly recent introduction. The warp and weft threads are of different colours and this creates the delicate designs. The *amrus* of Hyderabad are pure silk brocades, while the *himrus* are brocaded silk with an admixture of cotton or wool. In the true *kinkhab* the silver or gold wire is used as special weft threads or as special weft together with the silk threads.

The most popular designs of brocades are three : the finest and most important is the *shikargarh* mentioned above, in which hunting scenes form the main motifs ; the *butidar* is a design of sprigs or *butis ;* while the *beldar* is made up of scrolls — the most traditional perhaps, as it is to be seen represented even in the Ajanta frescoes. Also popular among Banaras brocades are those with designs of flowers and birds, especially the swan, and the *kalka* or flame.

The brocades of India are undoubtedly of very ancient lineage, both the *rupari,* made with silver threads, and the golden *soneri,* often ornamented with a richly coloured border. Perhaps the earliest mention of them is to be found in the *Yajur Veda,* the highly flattering reference being to *pesaskaris* — female weavers of embroidered fabrics. And it was perhaps "in the borrowed glory of this fabric that Herod was arrayed, when enthroned before the people, in the full blaze of the sun, they hailed him as a god." (Josephus, *Antiquities.*)

In his *Odyssey,* Homer gives a description of the rich robe of Ulysses which very closely resembles the Banarasi *shikargarh* brocade :

"In ample mode
A robe of military purple flow'd
O'er all his frame ; illustrious on his breast
The double-clasping gold the King confest.
In the rich woof a hound, mosaic drawn,
Bore on full stretch, and seized a dappled fawn ;
Deep in his neck his fangs indent their hold ;
They pant and struggle in the moving gold.
Fine as a filmy web beneath it shone
A vest, that dazzled like a cloudless sun.
The female train who round him throng'd to gaze,
In silent wonder, sigh'd unwilling praise."

To this Sir George Birdwood adds : "And when this passage is read with others in Homer, proof is added to proof of the traditional descent of the *kincobs* of Benares, through the looms of Babylon and Tyre and Alexandria, from designs and technical methods which probably, in prehistoric times, originated in India itself, and were known by the Hindus already in the times of the Code of Manu, and before the date of the *Ramayana* and *Mahabharata.*"

The Indian brocade called *chand-tara,* "moon and stars", is covered all over with heavenly bodies. Is this also so old that it made Athenaeus describe the cloak worn by Demetrius as a representation of the heavens, figuring the twelve signs and the zodiac and multitudinous stars, all woven in gold?* Like the muslins, Indian *kinkhabs* are known by names of poetic fancy — "ripples of silver" (*mazchar*), "sunshine and shade" (*dhup-chand*), "nightingale's eyes" and "pigeon's eyes" (*bulbulchasm* and *halimtarakshi*), and "peacock's neck" (*murgala*).

For the weaving of superior brocades, a loom more elaborate than that required for ordinary silk weaving is necessary. A description of such a loom has been given by Sir George Birdwood :

"A kind of inverted heddles called the *naksh* ("picture", i.e., design) is hung above the warp immediately behind the heddles, the other ends of the cords being fastened to a horizontal band running below the warp. Like the cords of a heddle the *naksh* strings where they cross the warp have loops through which certain of the warp threads are passed. But instead of getting an up-and-down motion from treddles pressed by the weaver's foot, the *naksh* is worked, from above, by a child seated on a bench over its father's head. The little fellow holds a bar of wood, and by giving it a twist, draws up the cords attached to the threads of the warp, which, according to the *naksh,* or pattern, are at any time to appear in the surface of the web. The weaver, at the head of the loom, adds variety to his design by working silks of diverse colours into the woof, along with threads of silver and gold : and thus the vision grows in the sight of the young child seated aloft."

Sir George Watt has classified the *kinkhabs* as follows :

1. Pure "cloth of gold" or "cloth of silver."
2. Brocades in which the silver and gold occupies the greater part of the surface and the coloured silks show only here and there to emphasise the design. These are the true *kinkhabs,* generally too heavy for making articles of clothing, but suitable as curtains, wall coverings, caparisons, howdah cloths, etc.
3. The *baftas* or *pot-thans* in which the greater part is made up of closely woven silk, and only selected parts of the design are in gold or silver.
4. "Silk gauzes or muslins with certain portions of the designs in gold or silver thread or with gold borders and end-pieces sewn on to

* This is a reference by Sir George Birdwood, but it is not clear to which Athenaeus or Demetrius he is actually referring to.

them." These are the *abrawans,* meaning "flowing water."

The following descriptions by the same authority of the brocades exhibited at the Delhi Exhibition of 1902-03 will give the reader a good idea of the beauty of India's richest fabric :

". . . woven in gold with an elaborate and minute pattern in pale coloured silk. The stalks and foliage of the scroll are in dull metallic green. The flowers are composite, each floret outlined in gold. There is first one large flower in pale pink alternately inverted, and between two of these are ten similarly formed but smaller flowers in two or three shades of pale yellow, blue and brown."

". . . the material is a pale neutral yellow with a conventional design of the poppy worked all over it. The leaves are in silver, the flowers in gold and the stems in black silks."

". . . a sari in dull yellow silk gauze with closely compacted *tercha* floral scrolls, the borders and end-pieces being in thick silver checkered damask, demarcated by narrow red lines which are broken up by gold spots — perhaps the most beautiful sari in the Exhibition."

". . . a cotton sari, dark blue with border in gold, the scrolls being in metallic blue acutely bent and interlaced with a green scroll, the latter having pink and orange flowers. The end-piece is a plain gold panel surrounded by the bordering."

". . . the body is terracotta silk gauze striped with gold. The end-piece consists of gold check with a glowing scroll worked in the most delicate green, red and blue."

Such were the glorious fabrics of an age saturated with the essence of luxury, unsurpassed textiles that in the words of Theophile Gautier, "attempted a direct conflict with sunlight ; a fight to death with the devouring luminosity of its burning sky, to blaze with equal brilliance beneath this flood of fire, the accomplishment of millions of fairies ; to produce garments of the hue of the atmosphere, with the colour of the sun, the moon, metals, flowers, jewels, sunlight, flashes of lightning — mixing all on its incandescent palette."

The *himru* of Hyderabad and Aurangabad is an inferior type of brocade in which both silk and cotton threads are used to produce the many-coloured designs. The actual ornamental design is formed on the principle of extra weft figuring. Although inferior in quality, the *himru* can be very charming in general effect and so naturally this fabric is in great demand, especially in view of its lower price in comparison to the pure silk brocade. Besides, it is so spun as to produce a soft material with almost the feeling of wool.

It is said that it was Muhammad Tuglaq who settled skilled artisans of Ahmadabad, Banaras and Gujarat at Aurangabad and this led to the start of the *himru* industry in the district. The *himru* is a copy of the *jamaivar* of Kashmir, the two best-known varieties of the past being *gulbadan* and *Shah Mohammad.* In these the warps were printed by means of a "resist" like the Javanese batik, the warp threads being dyed with the *bhoj patra* leaves. Only vegetable dyes were used, the most popular colours being saffron, green, crimson, and violet, and the chief designs the *saadat bel, gulzar-e-Osmani, bostan-e-asafi, ashrafi,* and *kamal-ka-phul.* Today the *himrus* are chiefly used for ladies' blouses and *cholis, sherwanis* for men, and as furnishing fabrics, one of the rooms in Rashtrapati Bhavan, the official residence of the President of the Union of India, having been furnished entirely with the *himrus* of Hyderabad.

Among the mixed fabrics mention may also be made of the *sangi,* an imitation of the *mashru,* produced mostly at Azamgarh, Allahabad, and a few other places. It is woven to produce a wavy *khanjari* pattern, the wavy line being carried on the surface of the fabric to look like embroidery. They may be of pure silk or of silk and cotton mixture, the warp being coarse and the weft fine. The *surkh zard* has a yellow wavy pattern on a red ground, mostly of mixed cotton and silk ; and the *sangi* proper, which is light red with a yellow pattern formed by a series of dots ; the *sangi nagshi* has a series of variegated *khanjari* stripes, as for example, four small and two large arranged in alternation.

The *mashru* has been dealt with in greater detail in the chapter on dyeing, as the warp is tie-dyed to produce a beautiful *khanjari* effect.

The less known silk fabrics of the country also deserve a passing reference. The *gulbadans* of Tanjore and Tiruchirapalli have so much of gold wire in them, they may be ranked almost as brocades ; then there are the beautiful gold saris of Madhya Pradesh, the Kashmir silk and gold embroidery work, the Mysore silks with shots of gold lending to them an enchanting beauty, the satinettes of Azamgarh, and the silk muslins or *tanzeb* of Banaras and Lucknow. Sambalpur is known for its *tassar* silk saris, the borders and ends dyed a brilliant crimson, yellow or blue. Famous also are the watered silks of Surat, the silk satinettes of Yeola and the *magia* silk saris of Ahmadabad, the silk satins of Kathiawar, and the beautiful saris and handkerchiefs in crimson made at Burhanpur. In North Arcot (Arni) are made lovely saris woven in checks outlined with gold threads and black, the meshes of the checks being in orange or red.

The particularly beautiful silk fabrics of Northern India will perhaps be best understood by a study of a few terms used to designate the different designs :

Buti : denotes a flower or spray.
Buta : as above but large in size.
Phulwar : a floral pattern running all over.
Jali : scrolls or lines forming a network enclosing sprays of flowers.
Doriya : logitudinal, warp-wise stripes.
Salaidar : weft-wise stripes.
Charkhana : stripes running both longitudinally and across.
Are-doriya : diagonal stripes.

Khanjaridar : zig-zag or wavy stripes.
Hayecha : diagonal lines running both ways to form diamond shaped figures.
Bulbul-chasm : "Nightingale's eyes," as above but each lozenge encloses a dot, generally in gold thread.
Bel : floral running scroll border.
Aribel : zig-zag border.
Minatashi : the field is of gold or silver and the floral design in coloured silks.

The treatment of colour in Indian silk fabrics is masterly, and Sir George Birdwood extols this in these words : "Even if the same form is used all over a fabric, the interchange of light and shade, and the effect of alternation, are at once obtained by working the ornament alternately in two tints of the same colour, but without shades of the colour, or light and shade of any kind, so that the ornamentation looks perfectly flat and laid like mosaic in its ground. It is in this way that the natural surface of any object decorated, is maintained in its integrity. This, added to the perfect harmony and distribution of the colouring, is the specific charm of Indian and Oriental decoration generally." And, again, as somebody else has written, "In the study of the coloured textiles of India, more especially the silk goods, harmony or balance in colours will be found cleverly accomplished."

The Bankura district of Bengal has been for long famous for its unique saris in two colours, say red and yellow or yellow and green ; the weft threads of the two surfaces are not kept very separate so one colour merges with the other, e.g., the green may appear shot with yellow and the yellow as if shot in green. The silk fabric is further calendered which gives it the soft effect of a satinette.

This chapter would not be complete without a mention of the lovely *Baluchar butidar* saris of Baluchar near Murshidabad in Bengal — a dead art, for they are very rare and are today considered as precious heirlooms. If the *jamdani* is a figured muslin, the *butidar* is a figured silk. It is said that the art of the *Baluchar butidar* died with the death of Dubraj (born towards the middle of the nineteenth century), the last of the master-weavers of Murshidabad.

The *buti* designs are woven with a silk weft in white, old gold, orange, red, yellow or green, the field colour usually being a deep purple or flaming red, or shot with dark red and blue. Occasionally the field may be dark blue.

The field design generally consists of *butis* or sprigs arranged on the ground like a mosaic, each *buti* "an enamel jewel on a dark background." So complicated is the process of weaving, so long does it take, that often over a dozen men had to work in co-operation on a single sari for days on end.

The end-pieces called *anchala* of some of the *Baluchar butidar* saris are very ornamental, depicting animals, flowering shrubs, figures of women in customary poses, the Tree of Life, or figures of men smoking the hukka, women conversing, a lady with a flower, men riding, etc., all elaborately detailed but with the figures highly stylised and formal.

"In the Baluchar saris we have the introduction of this novel pictorial element — these pictures of men and women, which are built up on vertical and horizontal lines and are enclosed in niches as it were, while the rest of the ornamentation, which is floral, is based on traditional schemes and methods of decoration of Indian textiles and is distinguished by a characteristic rhythmic and undulating flow and freedom of movement." (Ajit Ghose, *Marg*, III, 1.)

The later varieties of the *Baluchar butidar* had European motifs which were less happily depicted by the weavers. It is presumed that these saris with European figures may have been produced under the patronage of the East India Company who had a factory at Murshidabad, or were made to be used as gifts to Europeans in high positions.

According to Ajit Ghose, who has made a special study of these lovely saris, they are usually five yards in length and about forty-two inches in width, the *anchala* or end-piece being the most richly decorated, the design occupying the whole width of the sari, and about twenty-four to thirty-two inches in height. The field of the sari is generally decorated with the *butis*, although in products of a later date, the field was often left plain. The above-mentioned authority writes : "Some of the best of Dubraj were saris without figures but with the traditional *kalka* panel *anchala*, floral border and lovely floral sprigs in the field." It should also be noted that the figures depicted on the saris are invariably Muslim and so it seems that although Hindu ladies did and still do wear the *butidar* sari, they were primarily meant for Muslim use.

The following description by T. N. Mukharji will interest the reader with a technical bent of mind :

"As a rule there are two *nakshas* (designs) for the borders, two for the *buts*, two for the *anchla* or ornamental end-pieces and one for the beginning and finishing up. The draw-boy manipulates a 'harness cord' for the *buts*, the weaver puts in a thread for the *buts*. At next operation, viz., the putting in of a weft thread for the ground, the draw-boy does nothing, then the draw-boy manipulates a 'harness cord' for the border while the weaver puts in a thread. At the next operation again the draw-boy does nothing, while the weaves passes the shuttle to put in another weft thread for the ground. At each operation, therefore, time is spent by the weaver not only in his own manipulation, but also in watching those of the boy. For rich designs as many as fourteen *nakshas* are sometimes employed. It is easy, therefore, to imagine how a piece of 5 yards long and 42 inches wide can take as long as six months for a weaver and his boy to weave."

WOOLLEN MATERIALS OF INDIA

Very little of woollen materials are produced in India, perhaps due to lack of demand in a hot country. The most important are the Kashmir shawls, definitely pre-Moghul in origin and design, though these shawls are made both in wool and in silk. They are woven in long strips on small looms, the coloured weft being introduced by means of floating bobbins known as *tojlis*. The design is produced by moving the threads of weft back and forth through the warp. The narrow strips of cloth thus made are then carefully joined together with stitches that are almost invisible. These shawls are often embroidered and are then known as *amlikar,* but this will be taken up in a subsequent chapter. The *kanikar* or *tili* are those with designs produced on the loom itself. The motifs of the designs are mostly formalised imitations of nature — the leaf of the *chenar* tree, so prolific in growth in Kashmir, apple blossoms, the almond, tulips, the fruits common in the country. Birds are often depicted, all portrayed in a riot of rich colours.

The Kashmir shawls are justly world-famous for their delicacy of workmanship, the most celebrated being the old "ring shawl", so named because it can pass through a signet ring. Good shawls are also made at Amritsar and Ludhiana. However, mostly scarves (*rumals*), and wraps (*doshalas, chaddars, alwans,* etc.) are produced. Good quality blankets are manufactured at Bikaner, Jaipur, and Jodhpur, the best being those of Ajmer. Bikaner is also noted for its fine serges.

Most of the woollen fabrics of Kashmir with any artistic merit are made of *pashm,* the wool of a certain Asian species of mountain goat, *Capra hircus*, and hence are called *pashminas.* The fine fleece used is that which grows beneath the rough outer hair, the finest being that from the under-belly, and shed with the onset of summar. Wool of the wild Himalayan mountain sheep like the Shapo (*Ovis orientalis vignet*), the Bharat (*Pseudois nayaur*), the Himalayan Ibex (*Capra ibex*), and the Argali (*Ovis ammon*) is also used.

The best grade of fleece, soft, silky and warm, is the *asli tus,* derived from wild animals, and collected from shrubs and rocks against which the animals have themselves rubbed off the fleece on the approach of warm weather. This was the fleece used for making the celebrated "ring shawls" of Mughal times. The second-grade wool is derived from the domesticated animals and this provides the bulk of the wool used on the looms of Kashmir today.

India is probably the home of the shawl, an article of personal wear as we know it today. John Irwin of the Victoria and Albert Museum, London, tells us : "The Italian traveller Pietro della Valle, writing in 1623, observed that whereas in Persia the *scial* or shawl was worn as a girdle, in India it was more usually carried 'across the shoulder.' This fact, confirmed by contemporary portraits, gives India some claim to be regarded as the true home of the decorative shawl, in the sense in which it became known in Europe : a loose enveloping shoulder-mantle woven, either partly or wholly, in an animal fleece." It is intesting to note that even today the priests of the Parsis, descendants of the original Persians and professing the Zarathustrian faith, when ceremonial arrayed, drap a shawl round the waist.

According to Baron Charles Hugel, local tradition has it that the founder of the woven shawl industry in Kashmir was Zain-ul-'Abidin, called the Akbar of Kashmir.

The technique of shawl-weaving is known in the technical terms of the west as the twill-tapestry technique because of its similarity to that of the European tapestry weaving. The weft, in the patterned part of the fabric, is inserted without the use of a shuttle by using light, smooth, wooden spools called *tojlis,* the ends of which are charred to prevent them from becoming rough in use. Each *tojli* can hold about three grains of the woollen yarn and from 400 to 1500 may be used in the weaving of an elaborate pattern.

The design is formed by the weft threads only and they do not run the full width of the article but are woven back and forth round the warp threads where each particular colour is required. The loom is horizontal and not vertical like those used in Europe for tapestry weaving.

The twill-tapestry technique is too slow and laborious, demanding a very high degree of specialisation on the part of the weavers. The practice handed down traditionally was for the part of the shawl that was to have the pattern to be produced on a single loom, the plain field being woven on a separate loom of the usual kind, using a shuttle. With the beginning of the nineteenth century, when the shawl designs became more and more complicated, the practice of division of labour on a single shawl was introduced, the work being divided between two or three looms. After the various parts of the design have been individually woven, they are almost invisibly joined together by the *rafugar,* his stitches being so fine as to be almost invisible to the naked eye. Sometimes as many as eight looms would be used in the production of a single shawl, and according to Moorcroft, one shawl was reputed to have been made up of 1,500 separate pieces.

Before the actual weaving of the shawl, six other specialists are concerned in the preliminary preparation : the warp-maker, warp-dresser, warp-threader, pattern-drawer, colour-caller, and the pattern-master.

The warp-maker twists the yarn into the thickness required for the warp, this being generally 2000 to 3000 double-threads ; the warp-dresser then starches the warp and the warp-threader passes the yarn through the heddles of the loom.

The pattern-drawer or *naqqash* is a very important person and receives the highest pay. He may sometimes colour his own designs, but usually this is

left to the colour-caller known as the *tarah guru*. With the drawing in black-and-white before him, the latter calls out each colour, from the bottom upwards, and the number of warps along which it is required to spread. These instructions are noted down by the pattern-master, the *ta'lim guru,* and translated into a kind of shorthand that the weaver can understand and follow.

The above specialists prepare the warp threads of the main part of the shawl, while a separate group similarly prepare the warp for the narrow borders.

The Emperor Akbar was a great admirer of Kashmiri shawls and started the fashion of wearing them in duplicate (*do-shala*) sewn back to back, so that the underside was never seen. During Mughal times, the shawls most desired were those ornamented with gold and silver thread, and described by Manrique in A.D. 1630 as those with "borders ornamented with fringes of gold, silver and silk thread. They wear them like cloaks, either muffling themselves up in them or else carrying them under their arms."

The most characteristic of the Kashmir shawls or *chaddars* is a kind of patchwork. The patterns when loom-woven are made into long strips, about twelve to eighteen inches in length and from half to two inches wide. These patterned ribbons, made on very primitive looms, are then cut to the desired lengths and very finely sewn together to produce the final design and joined to a plain central piece. Again, the shawl may be woven in different pieces, cut up in the desired shapes, expertly sewn together and subsequently elaborated with embroidery. But while the patchwork loom shawls are made of narrow ribbons, the patchwork embroidered shawls are made of a number of irregularly shaped patches, each piece further elaborating the main colour scheme.

There are two chief kinds of shawls : the Twin-shawl or *do-shala* and the *Chaddar-rumal* or *kasaba*. The first are always sold in pairs, and the following terms are used to designate the different varieties :

Khali-matan : the central field is plain and unadorned.

Char-baghan : made up of four colours joined together.

Chand (Moon) : the central field is decorated with a medallion of flowers.

Kunj : the central field is decorated with flowers in the corners.

Palledar or Shahpasand ("King's Choice") : the end borders are broader than the side borders.

Dorakha : the pattern is so woven that it appears the same on both sides.

The colours commonly used are yellow (*zard*), white (*safed*), black (*mushki*), blue (*ferozi*), green (*zingari*), crimson (*gulanar*), purple (*uda*), and scarlet (*kermizi*).

The *kasaba* are more or less square in shape, produced probably under European demand, as also the half-shawl, so woven or embroidered that when folded in half across the middle, the design shows on both of the visible surfaces. They are generally twilled or may have a damask pattern woven in a plain colour, or may even be elaborately embroidered.

A brocaded woollen fabric is the *jamaivar,* which may be wholly of wool or with some cotton admixture, the floral designs and brocaded parts either in silk or *pashm* wool. These are fabrics of a fixed length, that is, available only in piece form ; and so the ends are fringed as in the Scotch plaid. And therein lies a point of identification ; for in the Kashmir *jamaivar,* the ends are woven straight from the piece, while in those of Amritsar and Ludhiana, the ends are finally sewn on.

Many kinds of designs predominate in these woollen brocades that may be classified into two large groups : the *rega butis* or small-flowered, and the *kirkha butis* or large-flowered. The designs like a net are the *jaldars*. The earliest designs are mostly striped ones, but later on there came into existence a number of floral ones, some of them copies of cheap European wall-paper.

In Jabalpur still another design originated, consisting of broad and narrow stripes alternating with one another, in rich shades of red (rarely blue) and with a white or yellow background for the floral scrolls. It must be noted that in these there are no additional brocaded weft patterns.

INDIAN WAX-CLOTH

This unusual and curious method of decorating fabrics — "the art of smearing cloth" — deserves mention although it is not indigenous and the technique was probably imported from elsewhere.

The chief substance used in the process is the oil heat-expressed from the *kara* or *poli* seeds of the Wild Safflower (*Carthamus oxycanthus*) and known as *roghun* oil. The seeds are boiled for about twelve hours and then thrown into cold water to produce the *roghun*. To colour it, different substances are added : orpiment for yellow, red lead oxide for red, white lead for white, powdered mica for silver, orpiment and indigo mixed for green, indigo for blue, and silver and gold leaf for metallic effects. A small quantity of dry lime is also added to the oil to give it a thicker and more workable consistency.

The craftsman takes a lump of the coloured *roghun* in the palm of his left hand, about the size of a pigeon's egg. Perhaps due to the corrosive action of the lime, he may wear a leather shield on the left hand, but this is not always done. He holds a short iron stylus in his right hand which is about six inches long and pointed at the working end. With this the *roghun* is teased out into fine threads. If in doing this, it is found to be too moist, a little more lime is added to thicken it. When the *roghun* is in a perfectly work-

able state and can be drawn out into threads of the required fineness, the thread adhering to the pointed end of the stylus is deftly applied to the surface of the cloth and drawn finer and finer, to form the design. The latter may be indicated with chalk on the fabric, but the details are always filled in free-hand by the worker.

"The rapidity and accuracy with which the pattern is worked up by threads of plastic *roghun* has to be seen to be appreciated and understood," writes Sir George Watt, who years ago published a comprehensive report on this subject (Vide *The Agricultural Ledger,* No. 12 of 1901). "The style is charged time after time from the store on the left hand and the little thickness or slightly rounded portion formed where each thread commences is most artistically utilised." We are told that the skilled workman can work from right to left with as much ease as from left to right, "the thick downward strokes and the fine upward hair lines, are each made to occur in their proper places."

As soon as the *roghun* thread has been deposited on the cloth, it is dabbed all along with a moistened finger tip. This causes it to sink into the surface of the cloth and adhere there. The *roghun* quickly dries and hardens into permanence, so that the material can be normally washed without any danger.

Sometimes powdered mica (*abrak*) is dusted on the *roghun* design after the threads have been laid to give the design a silvery sheen, or gold leaf or imitation gold powder may be used in the same way. On careful brushing the excess of mica or gold powder is removed, but the main bulk remains adhering to the *roghun* which once dry is impervious to any further loss of the powder. It is said that the *roghun* "can hardly be removed by ordinary treatment and is not even softened by the heat to which fabrics are usually subjected." The occasional fading of colours that is observed perhaps is due to the use of inferior materials for colouring, like white lead which is liable to turn dark in the presence of sulphurous gases, like any other cheap white paint.

The wax-cloth maker does not stop at laying down merely the lines of the design. When a solid patch of colour is required, as in the case of flower petals, leaves, or the bodies of birds, a clever trick is to allow the stylus with its dangling thread of *roghun* to travel over the whole area, but always in one direction, never backward and forward. Thus, parallel lines are laid down very close to one another and when these are pressed down with a moistened finger-tip, the coloured patch is formed, the threads adhering to one another. Properly done, no trace of the parallel threads should remain. When a design contains many colours, all work in one colour, whether lines or areas, is done at one time, before the worker will go on to work with another colour, and then a third, and so on. The half-finished cloth, say a table cloth, will thus present a bewildering appearance to the uninitiated as in the incomplete state one can hardly have any idea of the design and colour scheme that is in the wax-cloth maker's mind.

It was formerly believed that the craft of making wax-cloth was restricted to Northern India and especially Peshawar in the North-West and Lahore in West Punjab, both now parts of Pakistan. But the researches of Sir George Watt in the early part of the present century has shown that a similar art prevailed, and perhaps still exists, in two or three other localities as well. For example, the oil used in Pattan and Baroda is expressed from the castor-oil seed, but used in the same way as *roghun*. The designs and colour schemes prevailing here are different from those of the north, but the results are almost identical.

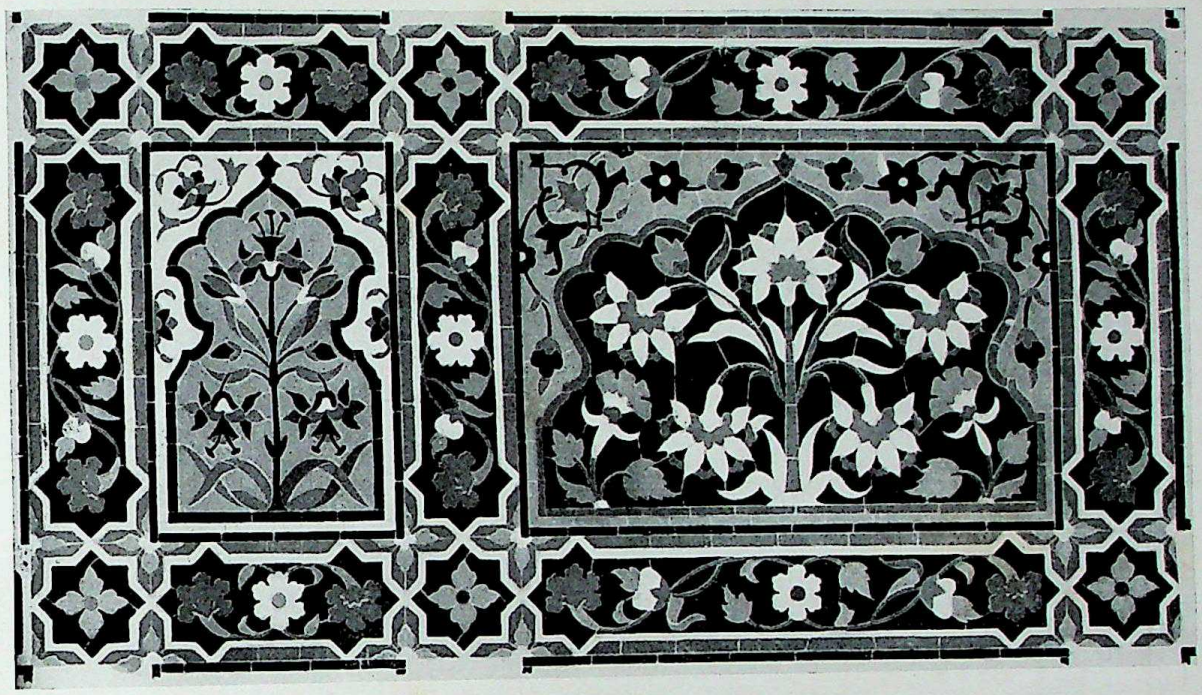
In Kutch, linseed oil is formed into a kind of *roghun* and used to produce the wax-cloth of the region. The designs produced though distinctly Mohammedan bear a strong Hindu influence, and they as also those of Baroda, remind one of the characteristic embroidery of these places. Sir George Watt remarks, "In fact, the only feature that is common to all the wax-cloths of India is that they are made by Muhammadans who are possibly descended from Pathans."

However, it has been pointed out that a similar kind of cloth is also turned out at Ahmadabad, Morvi, and Nasik. At the latter place "a perforated stamp at the end of a tube full of colour produces a pattern on the similar principle to the perforated cylinders used to make patterns in front of thresholds, but in one case the colour is a dry powder, and in the other it is mixed with linseed oil. As the paint dries, powdered mica is sprinkled over it. The Peshawar work is all traced with a stick, no stamps or tubes being used."

INDIAN LACES AND BRAIDS

The craft of lace-making does not appear to be an indigenous one. It must have been introduced into India from abroad and that in fairly recent times. As a matter of fact it is almost certain that the lace industry was introduced by the Portuguese and the Dutch in Quilon in the south, and it is also presumed by many that the craft was taught to Indian workmen by foreign missionaries. But our craftsmen have shown a remarkable aptitude for it, and beautiful laces in cotton, silk, and gold and silver thread are made, the best being those of South India. Lace is also made in the Punjab, both white and coloured.

Delhi is an important centre for the crafts of gold lace-making as well as embroidery in gold and silver thread. Lucknow also is another important centre. Here, in the variety called *kalabatun,* strips of gilded silver are twisted spirally round yellow silk and this then woven into a ribbon. In the *lachka* variety, the warp is of silver-gilt strips, woven with a



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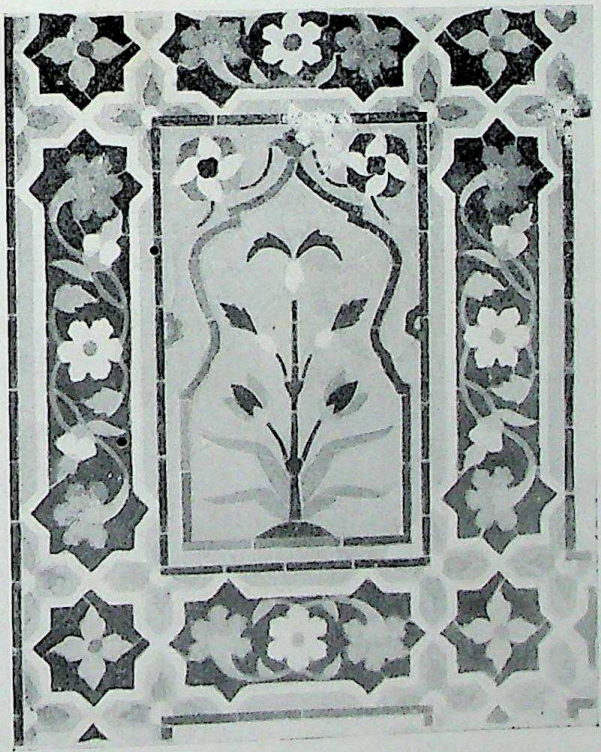

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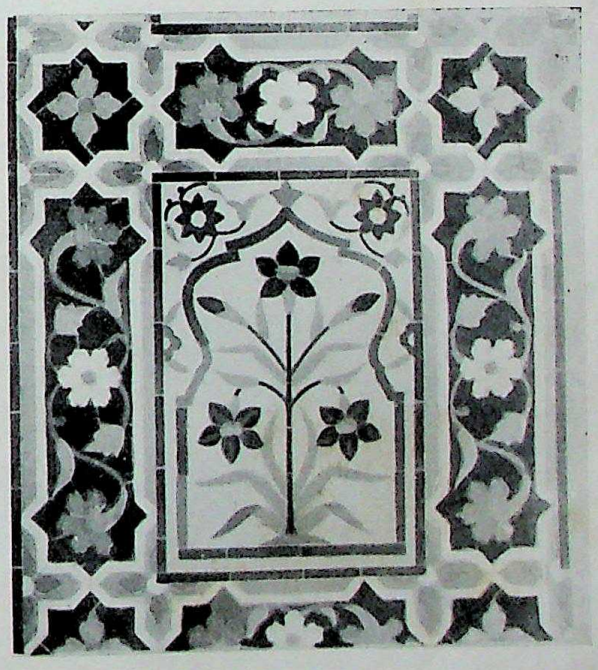

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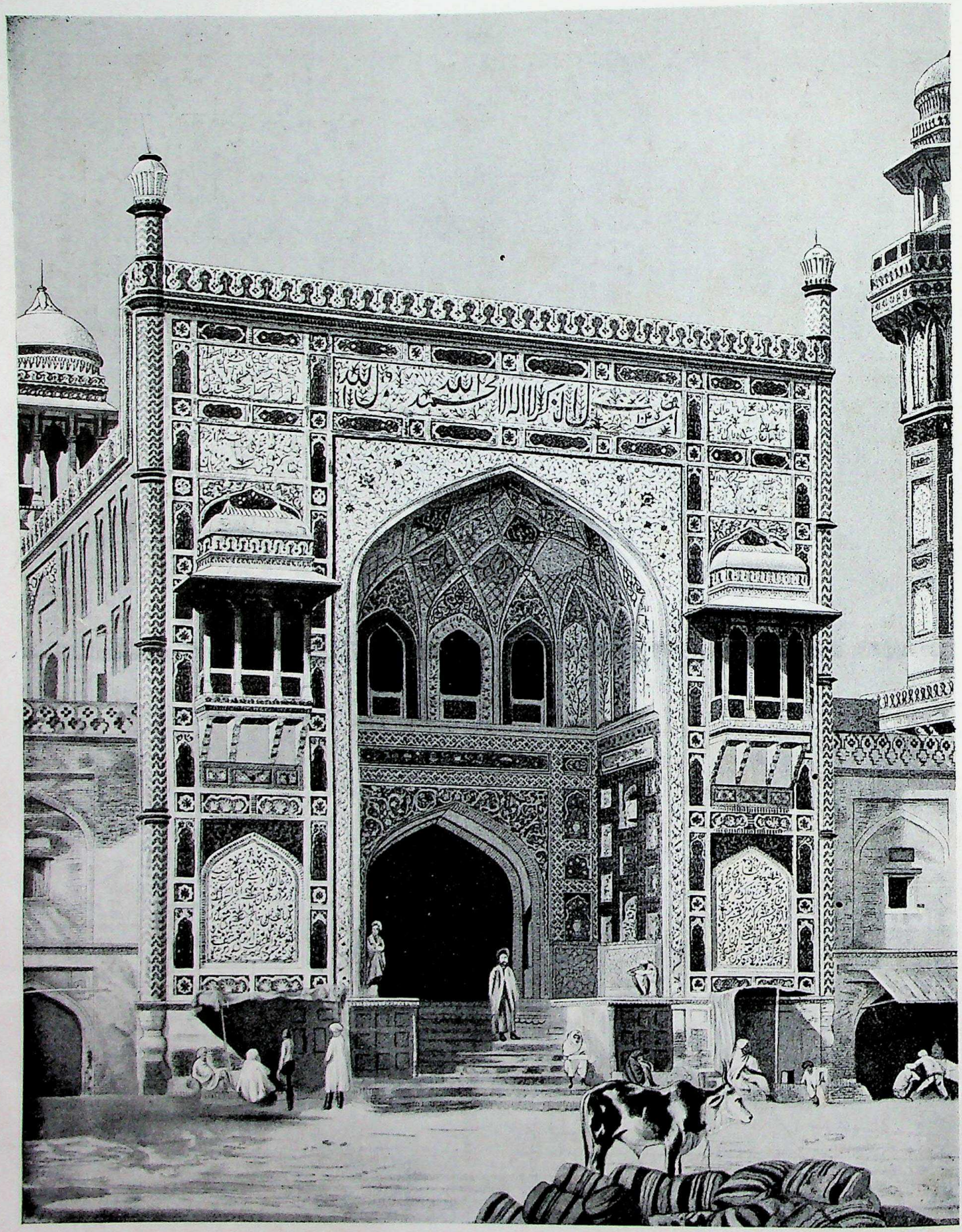
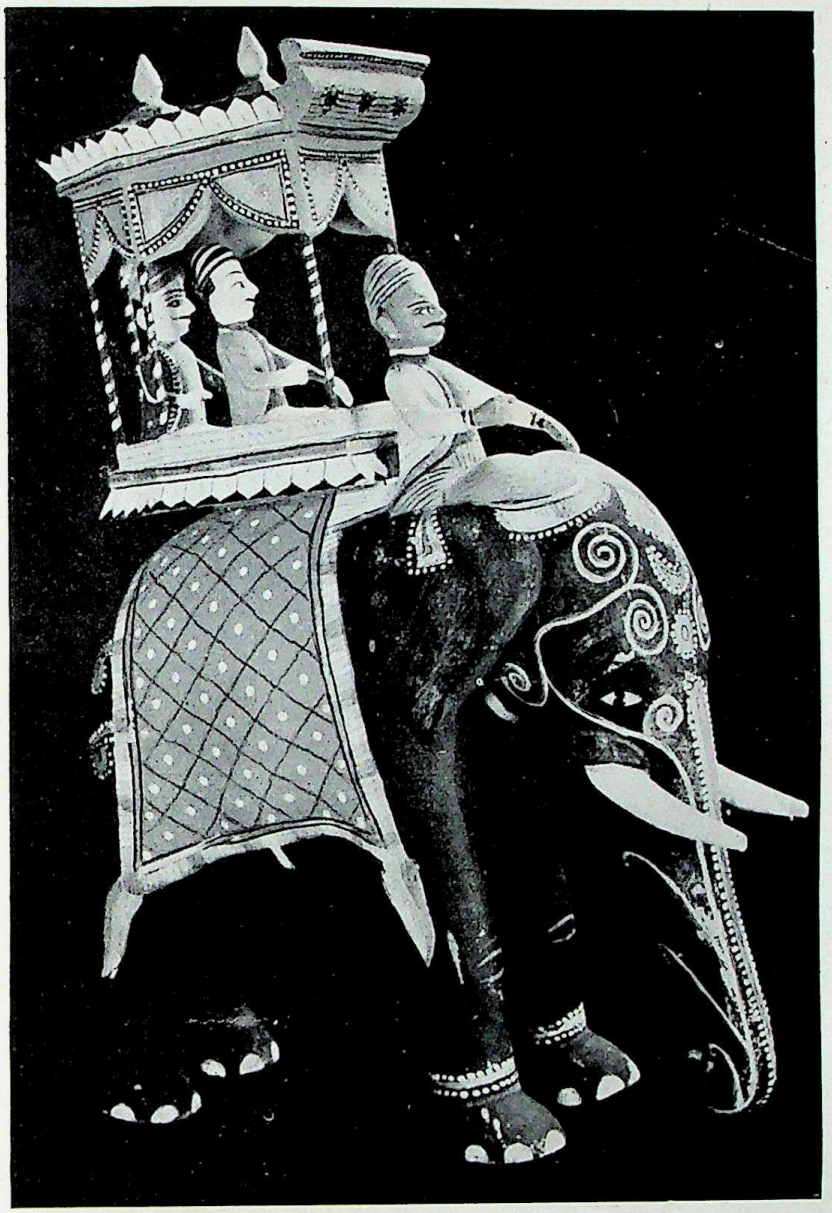
Tile mosaic panels from the west facade, north end, of Chini-ka-Rauza, Agra, the mausoleum of Afzal Khan who served both emperors, Jahangir and Shah Jahan and died in Lahore in A.D. 1639. At present it is in a bad state of preservation. 1, panel over the ground floor doorway. 2, 3, panels on the side of northern entrance. The predominant colours are vermilion, orange, blues and greens, all in pale shades.

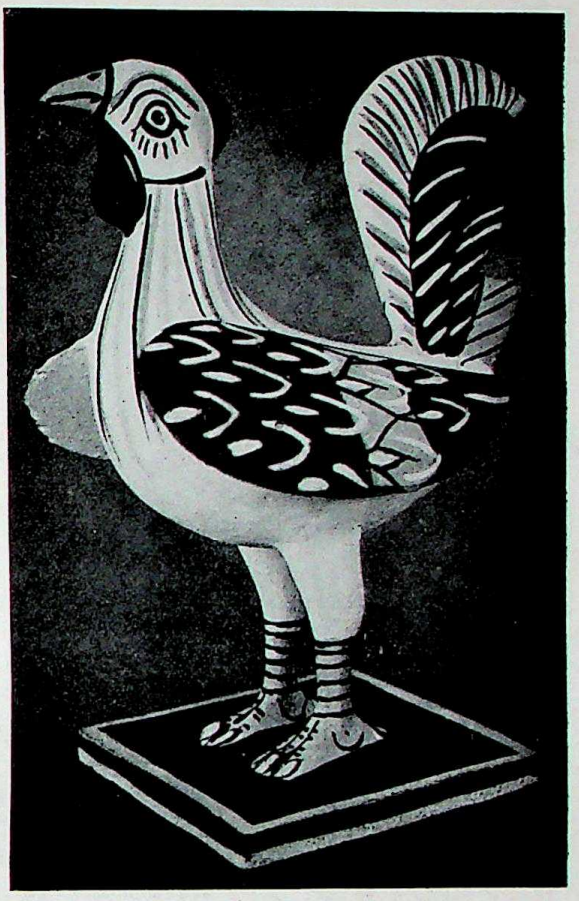
(From *The Journal of Indian Art and Industry*)

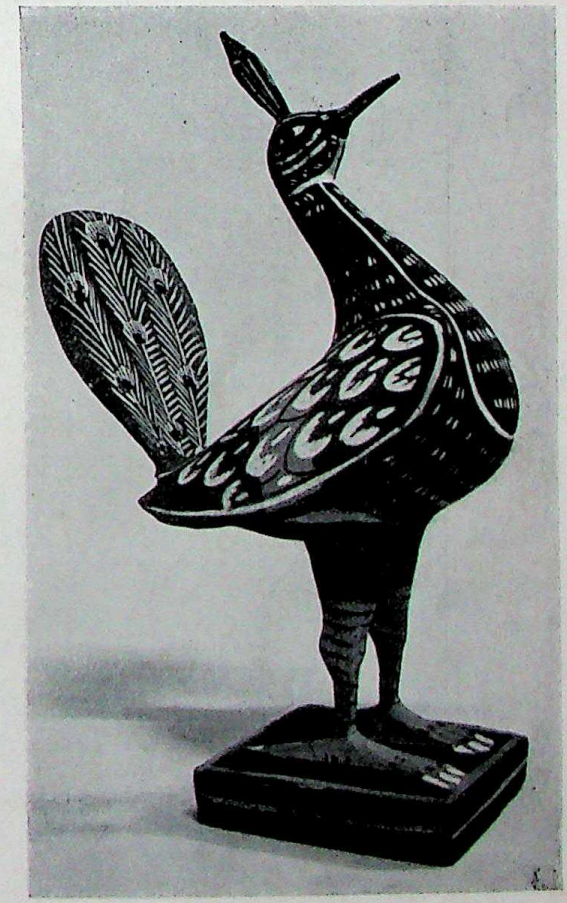


Kashi tile work on the gateway of Wazir Khan's Mosque in Lahore, built in A.D. 1634. Over the entrance is written in Persian "Remove thy heart from the gardens of the world, and know that this building is the true abode of man." In panels along the facade are beautifully written verses from the *Koran*. The exterior is panelled, the panels and minarets being veneered with *Kashi* tile-work of great brilliance.

(From *The Journal of Indian Art and Industry*)







Traditional Kondapalli folk toys, made of a light wood and brightly painted, representing an elephant with a howdah, birds and human figures.

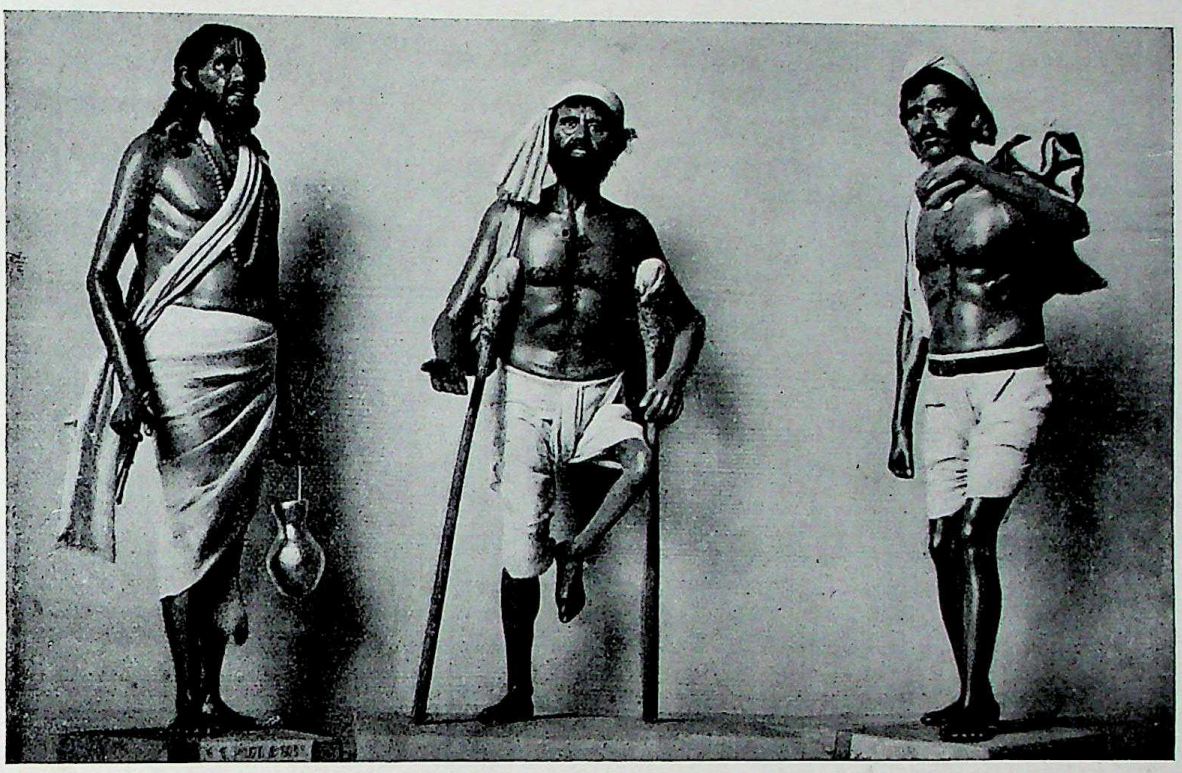
(Photos : V. Kesava Sarma)

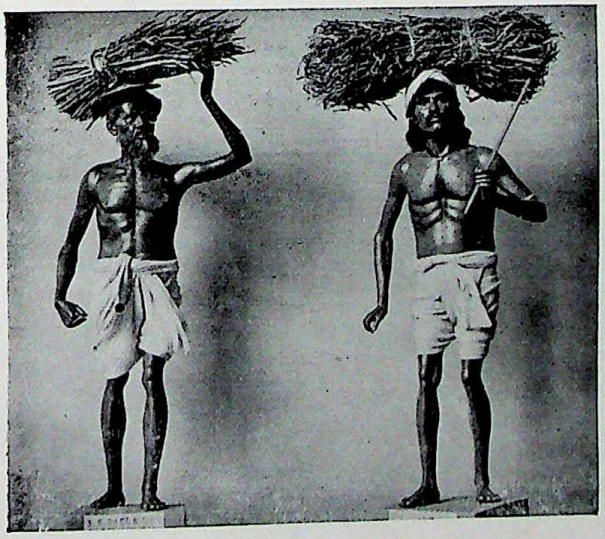
Brightly painted clay figures from Krishnagar, representing a group of Santhal dancers and musicians.

(*By Courtesy of Home Publicity Dept., Government of West Bengal*)

Coloured Krishnagar clay figures representing a troupe of musicians and dancers.

(*Photo : Barun Palit*)

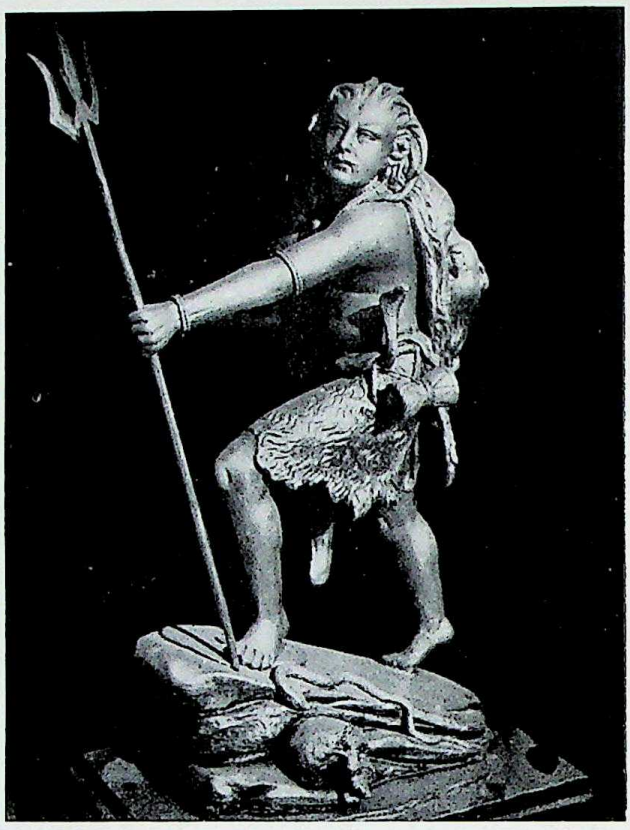




Carefully made and realistically painted clay figures from Krishnagar in West Bengal. These figures are famous.

(By Courtesy of Home Publicity Department, Government of West Bengal)

Two beautifully made and coloured clay figures from Krishnagar.
(*Photo : Home Publicity Dept., Govt. of West Bengal*)



Another stylish figure made of clay, from Krishnagar.
(*Photo : Barun Palit*)

A clay-modeller of Krishnagar at work on his ancient craft.
(*Photo : Barun Palit*)

1

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Brightly coloured clay figures from Lucknow. 1. Nawabs ; 2. The raja and rani ; 3. Servants; 4. Maid servants.
(Photos : R. Lakshmi)

Crude yet charming wooden folk toys of West Bengal.
(*By Courtesy of Home Publicity Dept., Government of West Bengal*)

Painted clay folk toys of Bengal depicting *left*, a Manipuri dancer and *right*, a "poong" player.
(*Photo : A. S. Vaswani*)

silken woof. In the *lais,* the woof is of metallic threads and the warp of silk.

The craftsmen of Murshidabad are well known for their skill in making gold and silver lace. In Bombay, Ahmadabad, Surat, and Poona also gold and silver thread is made and lace produced from it. In making the famous fabrics known as *tas,* the metallic wire is first beaten flat and used to form the warp, the weft being thin silk or fine cotton thread. This may be worked up into ornamental borders for saris, the most highly prized of the designs being the *shikar* ("hunting") pattern made in Poona.

Embroidered braids and trimmings are popular throughout India as edge trimmings for saris and other garments, or as borders. The common forms are the *gota,* a narrow braiding with the warp of *badla* gold wire (see the chapter on Embroidery) and silk as the weft ; *lais* (a corruption of the English lace?) is also a narrow braid with a woof of both *badla* and very fine gold wire and a silk warp, woven with an open texture, appearing more as if knitted than woven. In Surat and Hyderabad, there used to be a practice of making braids in the purest of gold threads and then decorating it with a repoussé design or a pattern embossed on it by means of stamps and punches.

If the gold is twisted with orange or red silk thread, the lace is called *sunheri* or *surkh ;* if made of silver wire twisted with white silk thread, it is known as *rupari* or *safed.* The laces and edgings are made in different widths to suit varied purposes, the *dhanak* being the narrowest and the *anchala* the widest, the latter mostly used as sari borders. The intermediate sizes are the *lachka, patri, patha, bankri, kiran, etc.* The designs observed in Indian laces, especially the metallic ones, are so numerous that it would serve no useful purpose to describe them here.

Surat laces, from ¼″ to 14″ in width, are once again achieving a certain degree of popularity and are sold throughout the country. They are now also made of silk or artificial silk, with gold and silver thread often interwoven. "In these laces there are various types of geometrical and floral designs with butterflies, birds and animals," writes R. C. Surkatha, Hon. Curator of the Sardar Vallabhbhai Patel Museum, Surat. "Each type of design has got its own dobby and is woven on a special old type of hand-loom. Artistic hand-knitted laces in gold and silver thread, mostly used by the Mahomadans are prepared by women workers." (*The Times of India,* September 15, 1958.)

INDIAN HAND EMBROIDERY

The art of embroidery is of great antiquity throughout the world and though probably of Eastern origin, must surely date back to very remote ages. The Christian scriptures, describing the Tabernacle and the holy garments of Aaron, ordain that "Thou shalt embroider the coat of fine linen and thou shalt make the mitre of fine linen and thou shalt make the girdle of needlework." And, again,

> "The King's Daughter is all glorious within : her clothing is of wrought gold. She shall be brought unto the king in raiment of needlework."

The paintings of figures on the Greek vases of early ages bear further testimony, if any be needed, of the use in ancient times of richly embroidered garments, both for men and women.

There is little doubt that hand embroidery has been widely practised in India since very early times, though we have no surviving examples of work dating much before the sixteenth century, due to its perishable nature. At the excavated site of Mohenjo-Daro, bronze needles have been found and they were most probably used for purposes of embroidery ; besides, the figurines found at this site and others of the Indus Valley Civilisation show indications of drapery that seems to be of an embroidered type.

Ancient literature and sculpture also go to prove the antiquity of the art of embroidery in this country. Buddhist sculptural representations, especially at Bharut and Sanchi, show patterned clothing that appears to be embroidered, most clearly seen in the veils and head-bands of the carved figures on the railing-pillars of the stupas.

The frescoes of Ajanta and Bagh also confirm the above. Here are depicted tunics and jackets embroidered round the neck and on the sleeves and sometimes even down the front.

Coming down to Mughal times and the workshops or *karkhanas* maintained by the rulers, the famous French traveller Bernier has thus described one of the workshops of the middle of the seventeenth century :

"In one hall embroiderers are busily employed, superintended by a master. In another you see goldsmiths ; in a third, painters ; in a fourth, varnishers in lacquer-work ; in a fifth, joiners, turners, tailors, and shoe-makers ; in a sixth, manufacturers of silk, brocade, and those fine muslins of which are made turbans, girdles with golden flowers, and drawers, worn by females, so delicately fine as frequently to wear out in a single night . . ."

The craftsmen of India have always excelled in hand embroidery on cotton, silk, wool, velvet, even leather, and their creations have been a source of admiration — the *kasida* embroidery of Kashmir, the darning-stitch *phulkari* work of the Punjab, both East and West, the chain-stitch embroidery of Kathiawar, the silk embroideries of Banaras, the *kanthas* of Bengal, the embroidered woollen shawls of Kashmir, that home of many art-crafts.

The wool embroidery of Kashmir is universally famous and desired throughout the world. In his *Manufactures of the Punjab,* B. H. Baden Powell has described the terms by which the different types of ornamentation of the embroidered shawls is known. The *hashiya* is the border running along the whole length and it could be single, double, or triple. The whole of the embroidery at the two ends of the shawl is the *phala,* with the *tanjir* or chain running above and below the principal area of the *phala.* The ornament situated on the inside of the *hashiya* and *zangir* enveloping the whole of the shawl is the *daur* or *dhour.* The corner ornament, mostly consisting of a cluster of flowers, is called the *kunjbuta.* The *mattan* is that part of the ground that is embroidered. The cone or *buta* motif with its flowing curves and minute diaper of flowers is the most popular. Generally, there is only one row of the cones ; but when there are two, the *buta* is known as *dokad, sekhad* up to five rows, and *tukadar* if the rows number above five. The *jhal* is the decoration that sometimes fills the ground between the cones.

The following description of the Kashmir shawls in the British Royal collection, gives a very good idea of the elaborate lengths the Kashmiri craftsman is capable of going to :

"One is worked with a map of the city of Srinagar, the capital of Cashmere ; the streets and houses, gardens and temples, with the people walking about among them, and the boats on the deep blue river being seen as clearly, in the quaint drawing of a mediaeval picture, as in a photograph. Another shawl more soberly colored, is one mass of the most delicate embroidery, representing the conventional Persian and Cashmere wilderness of flowers, with birds of the loveliest plumage singing in the bloom, and wonderful animals stalking round, and wondering men." (Sir George Birdwood.)

No wonder Mrs. K. S. Dongerkery waxes enthusiastic over the embroidery of Kashmir : "The innumerable shades of colours one finds in pieces of Kashmir embroidery support the theory that the riot of colours which go to the making of the gorgeous sunsets, the azure mountains, the sparkling lakes and the variegated flowers and birds, have left their indelible mark on the minds of the workers. The designs are evenly balanced. With their graceful stems running in all directions and their slender tapering leaves filling in the gaps with the perfection of Nature's own

handwork, the floral motifs rival Nature's original patterns in all their exuberant beauty. While flowers, leaves, fruit and birds form the main motifs in the designs of Kashmir embroidery, animals and human beings have no place in them . . . What wonder then that the chenar leaf, the grapes, the cherries and the plums, the pomegranate, the almond and the apple blossoms, the iris, the tulip, the lily, the lotus and the saffron flower should have inspired the embroiderers in search of lovely designs? Among birds, the most popular are the parrot, the magpie, the kingfisher, the woodpecker and the canary. Butterfly designs are also to be found, but flower and foliage are the dominant motifs. The popularly known shawl pattern is supposed to have been inspired by the cypress cone, almond or river loop in Kashmir and dominates most designs in some form or other."

The *kasida* embroidery of Kashmir is done either on silk or wool, with gay colours and varied designs. The articles made include saris, shawls, dress materials, cushion covers, table linen, handkerchiefs, and many other articles of daily or personal use. The chief stitches employed are the stem, the chain and the satin stitch.

Actually, *kasida* is a general term for Kashmir embroidery which includes many varieties like the *rafugari, dozi, zalak, doria, talaikar, vata-chikan,* etc., the *rafugari* using darning-stitch for scarves and shawls.

At the beginning of the nineteenth century, an important innovation was introduced, the needle-worked shawl or *amli,* a shawl ornamented almost wholly with the needle on a plain woven ground. However, though an innovation in the sense of its being produced in greater number than before, the entirely needle-worked shawl was not unknown in Kashmir before the nineteenth century.

The woven cloth that is to serve as the ground of the *amli* is placed on a smooth plank and rubbed with a piece of carnelian or highly-polished agate, till perfectly even. The design to be embroidered is first drawn on paper and the lines pricked through with a needle and thus transferred to the fabric by rubbing finely pulverised charcoal through this perforated stencil. The embroidery stitch used is a kind of parallel darning-stitch, the thread being made to nip up the loops of the warp threads, but rarely permitted to go beyond the whole texture of the cloth. This clever technique makes the embroidery look almost as if made on a loom. The outlines of the design are further sharpened by the use of wool or silk thread of different colours run round the fine details, the stitch used for the purpose being a kind of obliquely overlapping short darn-stitch. The stitches of the embroidery are so minute that they can hardly be seen with the naked eye. Besides, the *pashm* wool used for the work is blended so well with the texture of the shawl material that it is difficult to insert a needle between the stitches and the field cloth.

John Irwin points out: "Needle-worked shawls were made throughout the nineteenth century, and apart from those simulating loom-woven patterns, many were made with scenes depicting human figures. . . . It is important to add here, however, that after 1850 there was a marked deterioration in the technique of many *amli* shawls — particularly those with human figures — and some of the embroiderers resorted to a comparatively coarse chain-stitch, sometimes executed on a cotton ground."

Indian embroidery by no means ends with the embroidered shawls of Kashmir, however beautiful they may be. There are also the needle-worked muslins of Dacca and Patna, the rich embroidered fabrics of Hyderabad in gold and silver threads and coloured silks, the resplendent gold embroidered *makhmals* (velvets) of Lucknow, the attractive needlework of Kutch and Kathiawar, worked in chain-stitch on a satin ground and often inset with tiny mirrors.

In many parts of India, muslin is superbly embroidered with green beetle wings and gold, or in gold, painted spangles and imitation pearls. Leather is worked on in Sind and the embroidered leather wares of Gujarat were once famous. Marco Polo, the celebrated traveller, writing over 700 years ago about Gujarat, said: "They also work here beautiful mats in red and blue leather, exquisitely inlaid with figures of birds and beasts, and skilfully embroidered with gold and silver wire. They are marvellously beautiful things."

According to Sir George Birdwood, perhaps the most wonderful piece of embroidery ever to be done in India was the veil ordered by one of the Gaekwads of Baroda for the tomb of the Prophet Mohammed at Medina. In his own words, "It was composed entirely of inwrought pearls and precious stones, disposed in an arabesque pattern, and is said to have cost a crore of rupees. Although the richest stones were worked into it, the effect was most harmonious. When spread out in the sun it seemed suffused with a general iridescent pearly bloom, as graceful to the eyes as were the exquisite forms of its arabesques."

Sir George Watts has pointed out that a peculiarity of all Indian needlework is that "the needle is pulled away from, not drawn toward, the operator," as done in the West. "By each and every race of people in India the needle is therefore inserted within the fabric and the thread drawn away from the operator." He further states: "It is customary for darn stitch to be employed on coarse cotton and chain stitch to be used on silk or woollen fabrics. The former covers the textile, the latter ornaments certain isolated portions of it. The one corrects the inferiority of the garment, the other adds to its luxurious merits."

Standing on the north bank of the river Godavary, about 35 miles from Aurangabad, is Paithan, once a flourishing city, now almost in ruins. The chief industry is the production of gold and silver threads and embroidering them in saris and *pallavas* in different traditional designs mostly derived from the nearby frescoes of Ajanta, and old Mughal miniature paintings. This was definitely so till the first quarter of the present

century ; but these days, the Paithan craftsmen will produce any kind of design to order ; they will copy anything — photographs, landscapes, or whatever the customer orders. The craft is really more allied to weaving, but as a sort of embroidery comes in, it is being dealt with in this chapter.

The making of the fine gold thread is long and tedious. A rod of silver weighing about 15 tolas (about 6 ozs.) is covered with a very thin sheet of gold ; this is then heated and drawn into wires through holes in a steel plate. This hair-like wire is now beaten flat and wound round silk and polished. This is the thread used for the famous Paithan embroidery.

Unlike the usual form of needlework that appears right only on one side of the fabric, the Paithan work is woven on both sides on a loom. The silk yarn is stretched lengthwise on the loom to form the foundation and four to twenty-four shuttles used to "embroider" the design. The latter, drawn on paper, is fixed underneath the loom. The shuttles are passed through the threads stretched lengthwise according to the pattern and colour to be formed — a slow and laborious task, taking as much as eight days to finish a square foot of the finished fabric.

Chikan work and the white embroidery on cotton, linen, or silk, aesthetically pleasing in effect though without colour, are specialities of many places including Lucknow, Calcutta, Banaras, Dacca, Bhopal, Allahabad, Gaya, as well as Peshawar and Quetta, the last two today forming parts of Pakistan. The Quetta work is in the form of a double satin-stitch, the designs being quaint and almost primitive in form. In Bhopal, the silk embroidery is in satin-stitch, with the designs padded with a coloured material, so that the colour shows faintly through the white stitches, producing a very delicate and pleasing result.

White embroidery may be divided into three main types :

The Chikan Embroidery Proper : the best work of this kind originates in Lucknow, and further details are given later. It is however supposed that the craft actually originated in East Bengal and carried to Lucknow during the period of the luxury-loving Nawabs of Oudh. But Lucknow is the chief centre today, producing work of great beauty and remarkable distinction.

Satin-Stitch in White : this is done on materials capable of washing, and is often combined with true *chikan* embroidery.

Kamdani Work : this is gold or silver embroidery done on white cloth.

The very fine and delicate *chikan* embroidery of Lucknow is justly famous. The superb embroidering of floral designs with needles using bleached untwisted yarn of very superior quality is best when done on the finest of muslins. This is an old industry in Lucknow. It must be remembered that this city was famous in olden times for the production of hand-spun yarn of 200 to 300 count.

Though rather unusual in India, the work is mostly done as an industry by women, each specialising in a certain type of work. The designs are first prepared on paper and wooden stamping blocks made from them. The designs are then stamped on the cloth and passed on to the embroiderers.

At the present time, this embroidery is done on cambric and such other fabrics and coloured yarn is often used. The articles mostly in demand are dress materials, curtains, handkerchiefs, luncheon and dinner mats, napkins, tray covers, tea-cosies, table covers, *kurtas, dupattas,* etc..

The following are the chief kinds of stitches used in the Lucknow *chikan* embroidery, one of the most artistic and aesthetically satisfying of all the indigenous embroideries of India :

Taipchi : This is a short darn-stitch ; the thread is driven through the cloth in straight and parallel rows, in the direction required to form the design. Mostly done on muslin by women, the design is simply outlined.

Khatwa or *Khatao :* This is a kind of appliqué work generally done on linen or calico, never on the finer muslins. Very small pieces of the same material as the background are sewn on the surface to form floral patterns. This is so beautifully done that it appears more like embroidery than appliqué work. The details are produced by the *taipchi* or one of the other stitches.

Bukhia : This has been called an inverted satin-stitch, and is perhaps the most intricate. The thread is chiefly below the cloth and is used to produce opaque lines or areas in the designs on fine materials. While the thread below accumulates in a mass, on the upper surface, it nips the cloth material with tiny stitches outlining the different motifs of the floral design.

Murri : This means "rice-shaped" and is used only on muslin. It is best explained in the words of Sir George Watt : "The thread may be described as forming numerous knots or warts of a pyriform shape. These are in reality produced by a sort of minute satin-stitch but the embroidered patches rarely exceed one-eighth or even one-sixteenth of an inch in size."

Phanda : This means "millet-shaped" and is a smaller and shortened form of the *murri* stitch. The knots are spherical and very small, not pear-shaped as in the former. This is representative of the highest quality of work as the knots may be no more than 1/32nd part of an inch in size, closely compacted to fill the petals or leaves of the pattern.

Jali: This means "net", and is something like drawn-thread work, but in good work the threads are never drawn : the warp and weft threads are pushed apart with the needle and fixed in that position by very minute button-hole stitches. In the ordinary *jali,* the openings may be irregularly shaped, though squarish,

and usually not finished with button-hole stitches. But in the *Madrasi jali,* the square openings are perfectly made, about 1/16th of an inch in each direction. The first square is opened, the next left closed, and the third subdivided again into four still smaller openings. In the Calcutta *jali,* the openings may be only half the size of the former but arranged in parallel bands alternating with unopened ones.

Sir George Watt points out that a feature of Lucknow *chikan* is the fact that yellowish *tasar* silk is largely used in filling of petals or leaves. *Phanda* work is, as a rule, done in *tasar*. This peculiarity serves to distinguish the *chikan* work of Lucknow from that of the rest of India. *Tasar* (*tusser* or *tussore*) is the silk derived from the wild Indian silkworm. The same terms are applied to the cloth made from such silk.

Regarding the satin-stitch embroidery on white material combined with *chikan* proper, as done in Peshawar, J. Lockwood Kipling has written :

"Colourless embroidery or *chikan-doz* is wrought here as delicately as in Kashmir, and, as in chased copper, there is considerable affinity between the work of Srinagar and Peshawar. The *burka* or Muhammadan ladies' out-door mantle, garments of all sorts, and the *sozni* or quilt are the objects to which this work is applied . . . Some of the patterns wrought on fine muslins are nothing short of exquisite in line and quantity, but a close examination is necessary for a just appreciation of their beauty . . . Sometimes tiny pieces of muslin cut out in the shape of leaves are applied either on the surface or between two surfaces and outlined with fine stitches."

Both *kamdani* and *chikan* embroidery are ofen done on nets to produce a sort of lace. This art is also practised in Madras, in the old State of Hyderabad, and at Delhi.

Famous also is Lucknow's *zardozi* and *kamdani* work, embroidery in gold and silver that for long dazzled the courts of the Nawabs of Oudh — every design a piece of originality and imagination. Both types are of ancient origin and most probably originated there, coming into prominence during Mughal times. At present, apart from Lucknow, this kind of embroidery is also done in Bombay, Banaras, Bareilly, Agra, Aurangabad, Delhi, Hyderabad, Surat, and the Gujarat region.

Kamdani or *badla* as it is also called, is a form of embroidery in gold and silver wire that has been flattened and embroidered into the white cloth with the help of fine needles. With two or three stitches, a small round dot (called *fardi*) is produced and these dots form the chief characteristic of *kamdani* work. When done on coloured silk fabrics, these dots twinkle like stars in the night sky and give the work its scintillating and rich appearance.

Zardozi is also gold and silver embroidery but on velvet or satin and the metal is not used merely in the form of thread. Turned into *salma* or *sitara* wire, it is stitched onto the cloth with the help of silk thread, producing beautiful and attractive designs of birds and beasts, plants and flowers and flowing streams. Nowadays, the work is mostly done on saris and *choli* pieces to suit the modern trend, though it once only enriched the robes of princes. For appeal to European taste, evening bags, uppers of bedroom slippers, belts, etc., are also made with imitation *zari* embroidery.

Gold and silver embroidery — whether the dainty and graceful *kamdani* or the heavy *zardozi* — is invariably done with the cloth stretched on a wooden frame. While the former is generally carried out on fine silk on thin muslin, the latter is more common on heavy silk, satin, or velvet. Certain parts of the designs like the leaves and flower petals may even be padded to raise the embroidery over the surface of the cloth. This is the real *bharat-kam* of India. The gold and silver wires used may be straight, spirally twisted like tiny springs, or made in other different forms to suit the design being worked. The different types are dealt with later.

"The diversities and local characteristics of *bharat-kam* are as numerous as are the seats of the craft," writes Sir George Watt. "There is hardly an important locality of production that does not show something in its gold embroidery that is as distinct as are its ruined tombs, mosques, and palaces — something that marks the individuality of its rulers and of the dynasty of which, perhaps, it was capital . . . The reader who may first examine the dignity of style shown in the Delhi and Agra work, next the ostentatious grandeur of Lucknow, and lastly the barbaric simplicity of Burhanpur gold embroidery, will get a fair impression of the value of the study. But it is in the details of wire drawing, in the form of wire used, in the nature of the stitch employed and the degree of combination with precious stones and silk that the most fruitful directions of classification are given."

Embroidery in gold and silver is certainly very ancient. Yet surprisingly enough, it does not exhibit special marked characteristics in the different parts of the country, but is technically almost the same wherever it may be produced. This is in direct contradiction to the differing designs and styles of the different sites as pointed out by Sir George Watt.

The ancient lineage of this kind of needlecraft is testified to by a reference in the *Yajur Veda* to a counterpane embroidered in gold and silver and it was probably well known in Biblical times to the Israelites as the Exodus goes to show : "And he made the Ephod of gold, blue and purple . . . and they did beat the gold into thin plates and cut it into wires . . ." And, again, "Upon my right hand did stand the Queen in a vesture of gold wrought about in divers colours."

Among the many forms of embroidery in silver and gold is the needlework in gold and silver spangles and twisted gold wire done in Kathiawar ; the *badlani* of Surat, in which the design is carried out in flattened silver or gold wire called *badla*. Surat is also known for its *reshmi-bharat-kam* and *karchobi* work. The latter may be sub-divided into five classes :

Kasab-tiki : using silver and gold thread and spangles.

Jhik-chalak : using twisted thread (*jhik*) and zigzag thread (*chalak*).

Bharat-karachi : using pieces of cardboard to provide a raised body for the design, the material being used as a padding.

Jhik-tiki : using twisted threads and spangles.

Chalak-tiki : using zigzag thread and spangles (*tiki*).

The classification given above is after that of B.A. Gupte, who says : "The first thing an embroiderer has to do is to print with gum mixed with chalk the designs required, which he does with carved blocks obtained from local carvers, or with paper stencils. Very often he has only a small number of little blocks from which he produces many elaborate designs by varying their arrangements."

"If gold and silver embroidery has held its own through hundreds of years, the explanation is simple enough," writes Mrs. K. S. Dongerkery. "Pomp and pageantry make a natural appeal to the oriental mind. Further, the material used, namely, gold and silver thread, if genuine, can withstand the ravages of time and the tarnishing effect of the elements. The craftsman, whether he works with the chisel to build magnificent monuments of architecture, or enchanting forms of gods and goddesses, or with the needle on softer material to represent the beauties of the objects of nature, aims at creating something which will live, and be a constant source of delight not only to contemporaries but to future generations of men and women. Gold and silver offer a greater attraction to the embroiderer than material like silk or cotton, on account of its commercial value, its more abiding character and its hold on the popular imagination, apart from its traditional use on auspicious occasions."

Here is a brief description of the technique of making the gold and silver wire, known as *kalabatun,* an industry on its own. A bar of silver, about one and a half foot in length and about three-quarters of an inch in thickness, is first gilded by wrapping gold leaf around it and heating in a furnace till the gold leaf fuses with the silver. It is then called a *kandla.* The quantity of gold put on is more or less according to the colour and quality of the product ultimately required ; if the amount of gold applied is small, the product will be of a pale yellowish colour ; but if the quantity is increased, it will be a rich gold-red.

The bar is now drawn into wire by pulling it successively through round openings in thick sheets of steel plates fixed vertically. The wire is made thinner and thinner by drawing it through narrower and narrower holes in the draw-plate, until it may be as fine as a human hair and many miles in length. The beauty of the process is that however fine the silver wire may be drawn, it will always remain covered uniformly with gold. "The tensile capacity of the gold is wonderful, for however fine the bar may be drawn out, the gold surface always remains," confirms B. H. Baden Powell. "The fine wire used for making thread must be produced by drawing out the *kandla* to thousands of times its original length, and yet the gold surface and also the colour of the gold never changes ; if the *kandla* is thinly gilt and pale in colour, so is the wire, and if the *kandla* is dark red, so is the tinsel."

The wire thus made may now be flattened by hammering it on an anvil about two inches in width, to be finally wound around a silk thread. This makes the wire appear thicker than it really is, and imparts to it strength yet retains its flexibility, both so necessary for use in embroidery or weaving.

The actual method of winding the wire on the silk thread is rather interesting and has been described by Captain Meadows Taylor in some detail :

"The silk is very slightly twisted, and is rolled upon a winder. The end is then passed over a polished steel hook, fixed to a beam in the ceiling of the workshop, and to it is suspended a spindle with a long thin bamboo shank, slightly weighted to keep it steady, which nearly touches the floor. The workman gives the shank of the spindle a sharp turn upon his thigh, which sets it spinning with rapidity. The gold wire, which has been wound on a reel as it passes behind the maker, is then applied to the bottom of the silk thread near the spindle and twists itself upwards, being guided by the workman as high as he can conveniently reach, or nearly his own height, upon the thread : but it is impossible to describe in exact terms, the curiously dexterous and rapid process of this manipulation. The spindle is then stopped ; the thread now covered with wire is wound upon the spindle and fastened in a notch of the shank when the silk is drawn down and the spindle is again set spinning with the same result as before."

Silver wire is made in the same way except that the original bar is not covered with gold leaf. For some embroidery purposes the wire is not drawn very fine and is then known as *badla,* which is also used for the making of gold braids. Spangles made of silver or gold are also used in embroidery together with the wire and are known as *taras* or *sitaras* in some parts of the country.

The terms current in the Gujarati-speaking regions in the west are somewhat different :

Chalak or *Kasab :* rather thick gold or silver wire coiled like a spring and always with a very bright finish.

Salmo : like the above but made of much finer wire and the coils well compacted. Available in dull or bright finish, but never as bright as the above.

Tili : gold and silver flat spangles.

Phulia : like above but hemispherical or saucer-shaped.

Dori : this is what its name indicates — "string." Gold and silver twisted wire, and flexible.

Badlan : thin gold braid.

The *phulkari* and *bagh* are the traditional embroidered shawls of the united Punjab of old — about

2½ yards by 1½ yards in size, and perhaps the loveliest to be produced in this country. *Phulkari* literally means "flower-craft," just as *bagh* means a "garden." And why? For in their effect they are veritable flower gardens, rich and colourful.

The *phulkari* shawls are worn by the women of the Punjab and the former Sikh states. They have separate *pallas* or end-pieces in different designs to the main shawl, but often even more beautiful and elaborate. The designs may be conventionally floral or geometrical. The word *bagh* is used mostly in the West Punjab districts, unlike the common use of the word *phulkari* in East Punjab. In these shawls every inch is covered by the embroidery with a beautiful blend of colours, looking like rich tapestry and with a velvety sheen. Unlike the *phulkari* shawl, the *bagh* shawl does not have a separate *palla*, but the chief motif is repeated by a different arrangement to form gorgeous designs. In other words, while the *phulkari* design is made up of diagonal, vertical or horizontal stitches to form geometrical designs, the *bagh* has an overall geometrically floral pattern, strictly conventionalised, known by different names depending on the chief motif, like "Shalimar bagh", "mirchi bagh" (chillies), "dhunia bagh," "kakri bagh" (cucumber), etc.

These shawls are embroidered with soft untwisted silk floss called *pat* brought from Kashmir and formerly even from Afghanistan, but dyed locally. The fabric used is always hand-spun, hand-woven and home-dyed cotton *khaddar,* mostly of a rather coarse nature. But very fine *khaddar* or *halwan* is also used for very superior work. The cotton material may be red, blue, white or black, and the *pat* chiefly white, crimson, golden-yellow, orange, and green.

The *phulkari* embroidery is done in a darning-stitch *from the back,* each stitch being about quarter of an inch in length. It will be realised that the darning-stitch makes the use of curves in the designs very difficult. And here is the chief peculiarity : the embroidery is done on the reverse of the material to ultimately produce the design on the right side.

Certain authorities have drawn this distinction between the *phulkari* and the *bagh,* in that in the former the ornamentation is dispersed, mostly diapered, with large areas of the field colour showing even within the *butis* or flowers, so as to outline the details. In the *bagh,* however, the whole field is covered with the silk, "the outlining being done by methodical and parallel lines of the field texture perhaps not more than 1/16th of an inch in diameter." In the *phulkari* the stitch is never longer than about one-quarter of an inch, three or four being made at each insertion of the needle which nips up portions of the field at the exact points required. In some of the *bagh* designs like the *kakri bagh* and the *lahori bagh*, the diaper embroidery may be so closely spaced that the colour of the original fabric will be seen merely as a fine outline round the embroidered motifs.

There are many kinds of *phulkari.* The one with a full *palla* and richly embroidered all over, and the richly ornamented *bagh,* are really meant for special occasions. The best were produced in the districts of Peshawar, Sialkot, Jhelum, Rawalpindi, and Hazara, all now in Pakistan ; and in Amritsar, Jullundur, Ambala, Ludhiana, and the former Sikh states of Patiala, Nabha, Jind, Faridkhot, and Kapurthala.

The wedding *phulkaris,* presented to the bride by her maternal grandmother during the marriage ceremony, are the *chope* or *chobe,* and the *suber.* These are larger than the ordinary *phulkaris* and the embroidery also is of a special kind, somewhat akin to the cross-stitch to look at. The ground material is invariably a rich red of finely woven *khaddar,* and the embroidery itself is in golden-yellow. A distinguishing feature is that the embroidery is done only on the wide borders and sides, while the main central part of the shawl is kept undecorated.

The *chope* used to form a very important part of a girl's trousseau and the grandmother took a lot of trouble on its production. The work was started on an auspicious day after a simple but solemn ritual in presence of friends and neighbours. It used to be thus born "in an atmosphere of love, goodwill, and friendship with a fond Grandma's blessings and later, with tender patience and ardent faith, it grew into a lovely and magnificent shawl." Today, the *chope* of old is an heirloom and passed from mother to daughter for use on the wedding day.

The *suber* is also red and this is worn by the bride at a particular stage of the marriage ceremony, the *phera,* when she takes seven rounds by the sacred fire. In colour it is a dark red and simply embroidered with only a few designs, usually five motifs in each forner and five in the centre, the rest of the shawl being left plain and undecorated.

The shawl, in plain red *khaddar,* meant for daily use is the *saloo ;* another cheap one is the *til patra,* with very little embroidery, and these were presented to domestic servants on auspicious occasions. The *nilak* is of black or navy-blue colour, with the embroidery in crimson and yellow floss. This is a particularly charming shawl and rightly popular. But one of the most outstanding is the *ghungat bagh,* "the veil shawl," which has a triangular-shaped embroidery on the part which covers the head, the base of the triangle towards the selvedge and the apex pointing towards the back of the head. There are generally two large triangular motifs and often other accessory trimmings.

In certain parts of the Punjab like Hissar, in some of the Delhi areas, Gurgaon, Rohtak, etc., *shishadar phulkaris* used to be made regularly, embodying mirror pieces within the embroidery. Striking effects are produced by placing tiny circular mirrors within the embroidered design, held in place with a buttonhole stitch all round the perimeter. It is said that the glass was first blown into small spheres, silvered inside and then broken into the required shapes and sizes. The ground of the *shishadar phulkaris* is red or choco-

late brown worked on with a yellow or slate-blue silk. Though rather heavy and over-ornate, the scintillating glass reflecting the hues of the embroidery yarn, lends it a rather uncommon charm. These shawls are no longer made and so are today considered as family heirlooms.

As said before the basic fabric of these shawls is invariably hand-spun and hand-woven *khaddar* of different weaves and textures, and dyed different shades of red and blue-black or left white. The embroidery stitches used are simple, the purest and softest silk floss of different colours especially green, crimson, golden-yellow and white being used. Sometimes the cross-stitch, satin-stitch, the buttonhole-stitch and herringbone-stitch are used, especially for giving strength to the selvedge and as a narrow insertion where the *palla* joins the body of the shawl.

The *bagh* shawls are generally embroidered in one principal colour with other shades used in contrast but always in small proportions. Sometimes, two or three colours may predominate, but two-colour combinations like orange and yellow, green and crimson, or white and gold really look the best.

The *khaddar* used as the basic fabric always used to be dyed with indigenous dyes extracted from plants, the commonest being those from the flowers of the "Flame of the Forest" tree, the bark of the Acacia, and the roots of the Madder plant, called *manjit*. This last is the most popular and with it various shades of red, yellow and chocolate brown were produced. Today, this use of indigenous dyes is not insisted on.

Lamenting the crude work that is palmed off on the ignorant as true *phulkari,* Adris Banerji writes : "On the upper surface, the fabric appears to be closely compacted mass with bands of silk threads, that are separated by neat geometrical patterns of the cloth. This is one of the qualities which enables us to distinguish between real 'Phulkaris' and the modern atrocities that are passed on by the same name. There are no parallel furrows of the embroidered cloth alternating with masses of silk threads in the later works. The length of silk threads has become prolonged to as much as 2" . . . The colours too have undergone change, and the place of rich golden yellow on an Indian brown field, relieved with white, deep yellow, or scarlet red on crimson field, occasionally with specks of green and blue are taken by indigo blue, black, etc. The embroidery is done with ugly green, white, purple, red, silk, etc., dyed with aniline dyes. We realise with a pang and heartache that another magic world of art, patterns and colours created by voluntary effort, has been lost." (*Marg,* VIII, 3, 1955.)

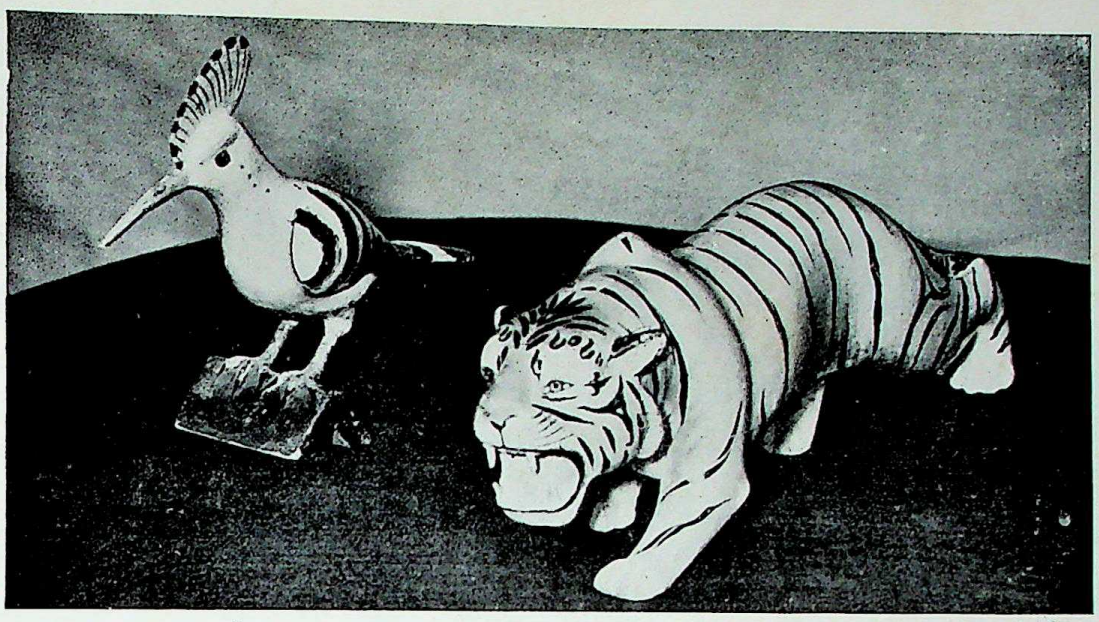
Mrs. F. A. Steele, who was perhaps the first to make a study of the Punjab *phulkari* and encourage its revival, has this advice to give : "In judging *phulkari* work, invariably look at the back and classify merit by the smoothness and regularity of the stitches. It may also be set down as an axiom that in so far as the pattern changes from pure geometrical lines, so far has it deviated from the ancient art, which was essentially a diapering, not a flowering in silk. The colours of the ground work are best confined to two, viz., different shades of madder-browns and indigos, while the silk should be either yellow, or white, or green. Crimson is admissible in indigo grounds, but it is modern."

To conclude in the words of this pioneer of Punjab embroidery, the *phulkari* is "a work of faith, savouring somewhat of sowing in the red-brown soil. . . . Its beauty is to be manifested later on, with the rare holiday-making, when the worker will, perhaps, for the first time, unfold the veil, to see and wear the fruits of her labours." ("Phulkari Work in the Punjab," *The Journal of Indian Art,* Vol. II,1888.)

Among the other embroideries of the united Punjab of old and the Punjab Himalayan regions, are the Chamba *rumals,* literally handkerchiefs, but which are really small shawls. They are embroidered with themes from Indian mythology, scenes from the *Mahabharata* and the *Ramayana*, the Ras-lila of Radha and Krishna, as well as ragas and raginis and Pahari miniature paintings, done in silk yarn on tussar cloth or fine cotton fabrics. The ground is usually white or cream, but the embroidery silks are in vivid and striking contrast, both sides of the embroidery being alike. Like the *phulkari* and the *bagh,* these *rumals* were also presented during a Chamba wedding and formed an important part of the girl's trousseau. As mentioned before, they are not used as handkerchiefs in the Western sense of the word, but are draped over the shoulders, both by men and women. Generally square in shape, they may also be rectangular, ranging from two to six feet in length, those about two to four feet being the most common.

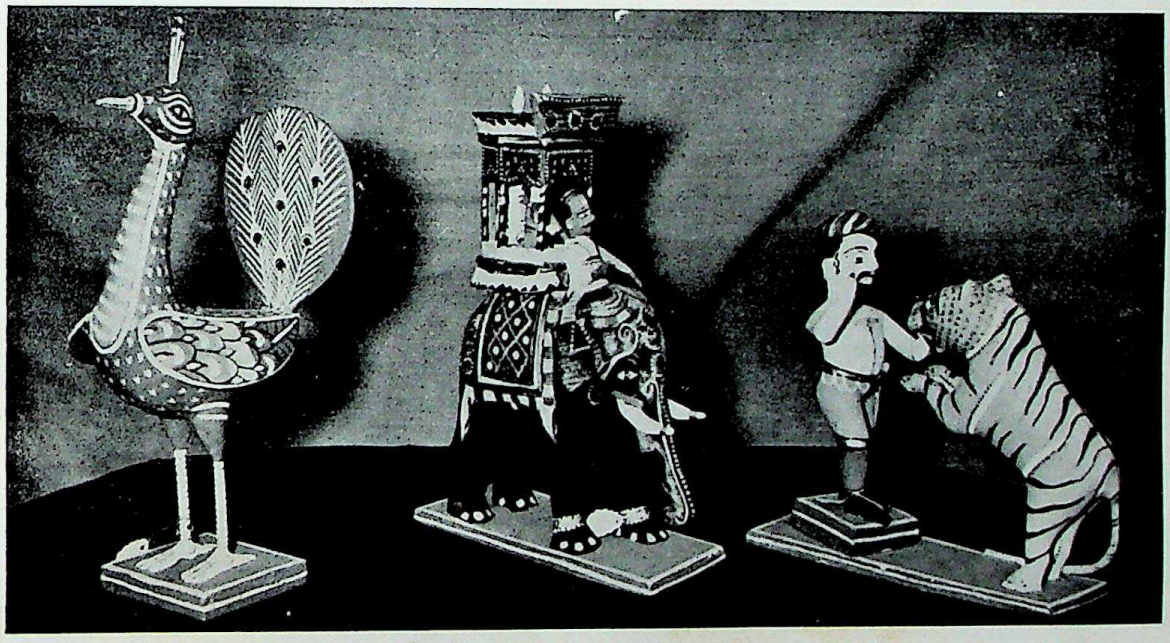
The embroidery should be the same on both sides, the outlines in dark silk. The whole work is carried out in the running-stitch, with no gaps between the stitches. The chief motifs are trees, flowers, architecture, human characters and dancing figures, often made up into whole scenes as said before. It has been pointed out that a feature of the Chamba embroidery is that human figures are shown "in action in normal surroundings and in dances." The depiction of movement in the form of embroidery is certainly an achievement of the Chamba craftsmen and no wonder Dr. Stella Kramrisch has described this art-craft as a translation of painting into needlework.

Dr. Mulk Raj Anand confirms this : "When the space is adroitly filled in, so that the figures appear on both sides of the Rumal, executed with fine overlapping parallel stitches, the effect is almost the same as in the small frescoes on the walls of the palaces in Punjab hills. It is almost as if the whole picture has been transplanted from the wall on to the cloth. As the cloth is usually handspun or handwoven, and obviously bleached to give it that homely whiteness, which throws off the colours to advantage, the resemblance between the Rumal and the frescoes becomes unmistakable." (*Marg,* VII, 4, 1954.)



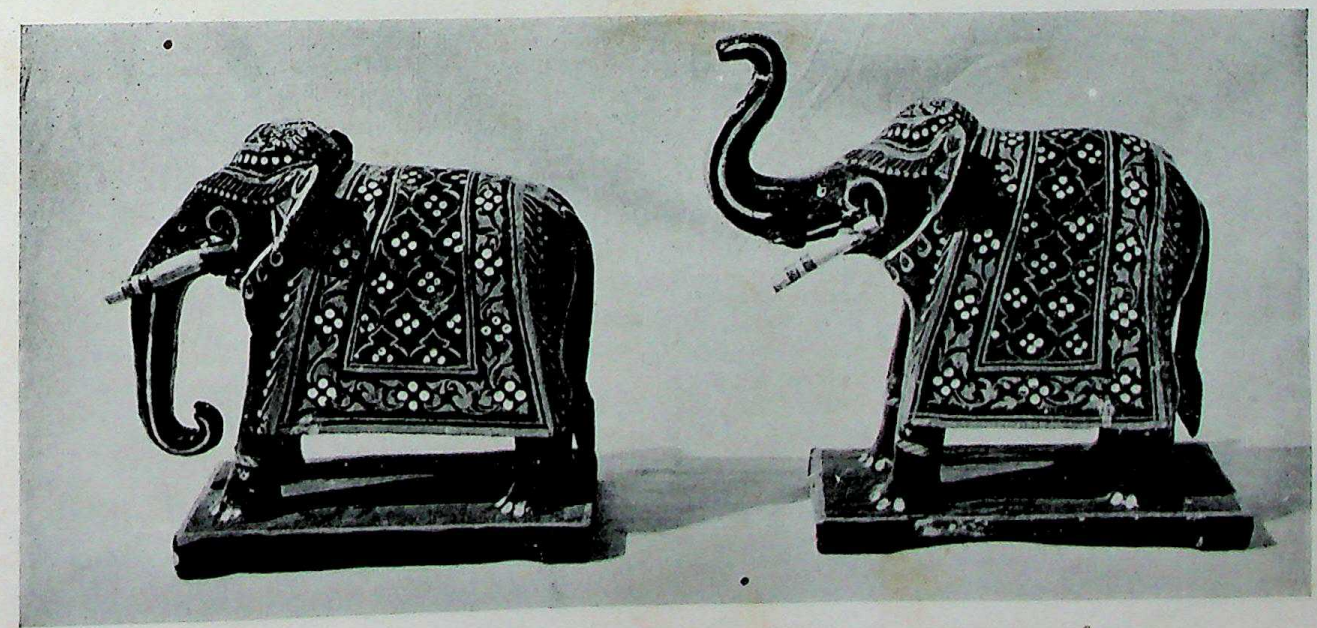
Nirmal toys, made of light wood and painted.

(*Photo : R. V. Rao*)



The famous Kondapalli painted wooden toys.

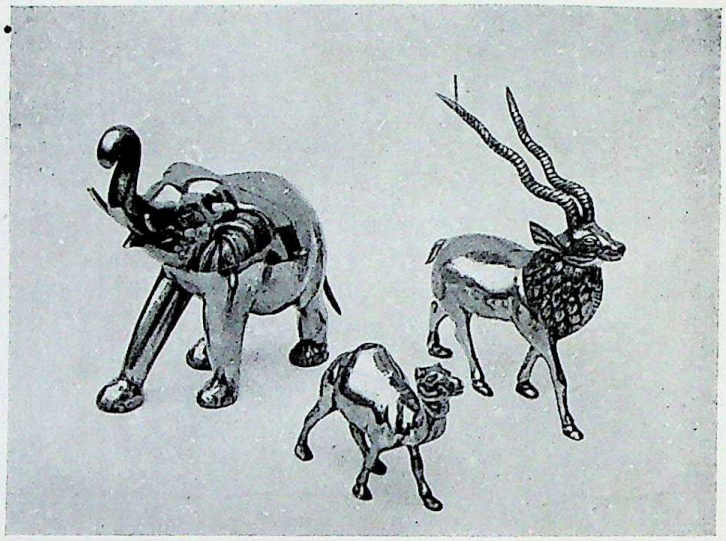
(*Photo : R. V. Rao*)



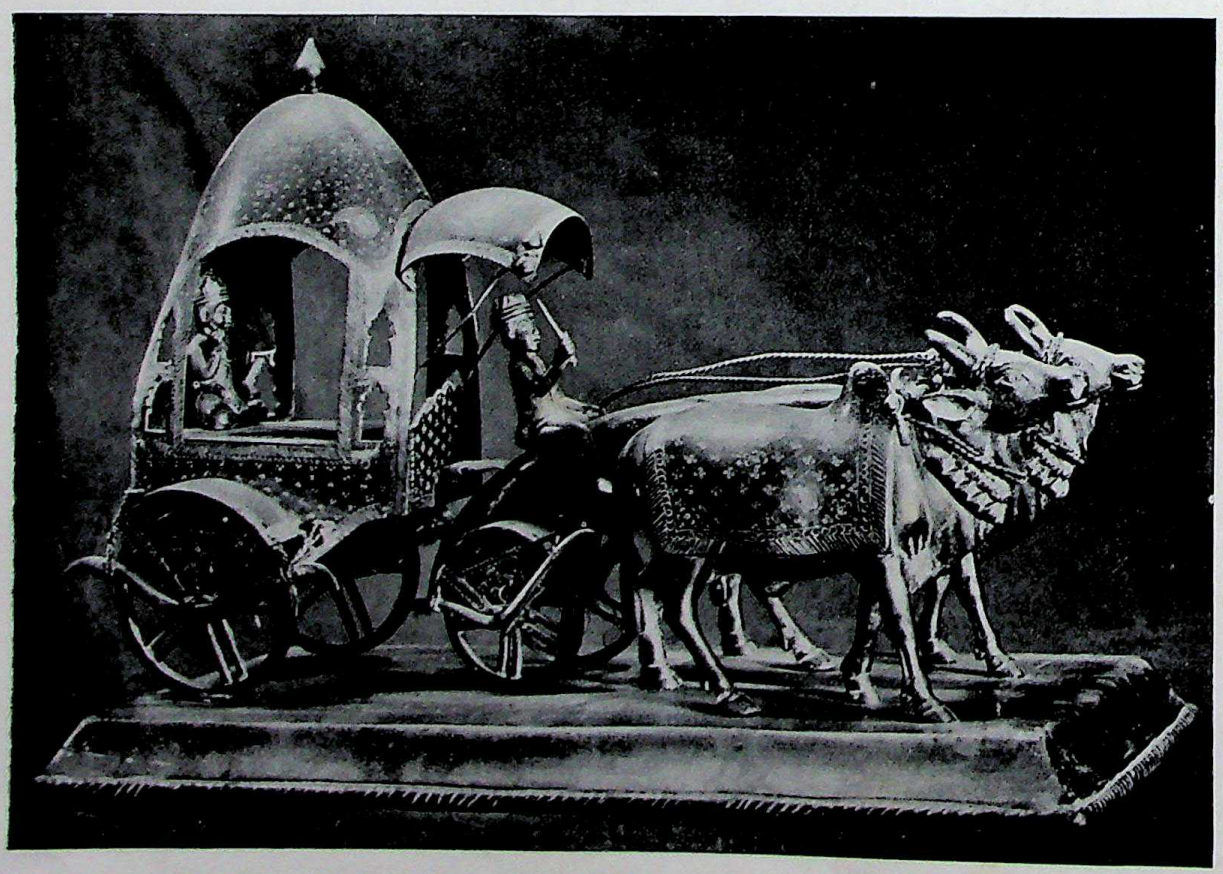
Painted and lacquered wooden toy elephants from Rajasthan.

(*Photo : A. S. Vaswani*)

A metal toy horse on wheels.

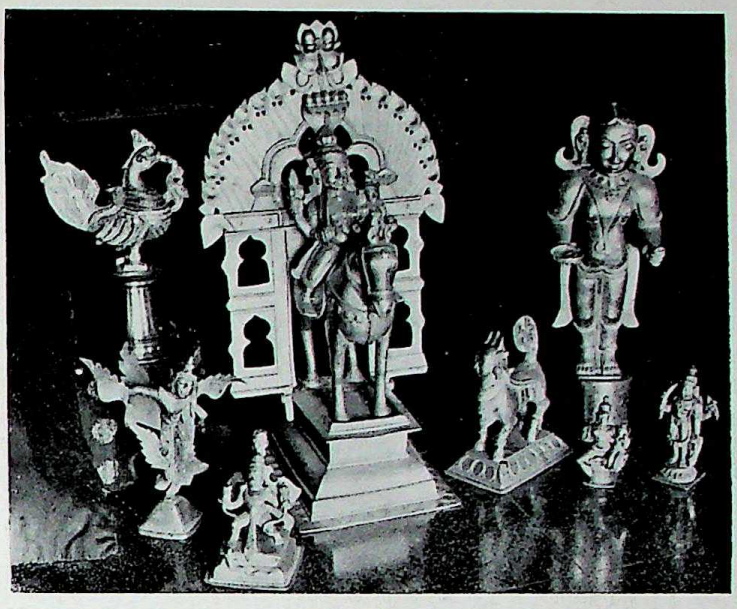


Brass animal toys from Jaipur.

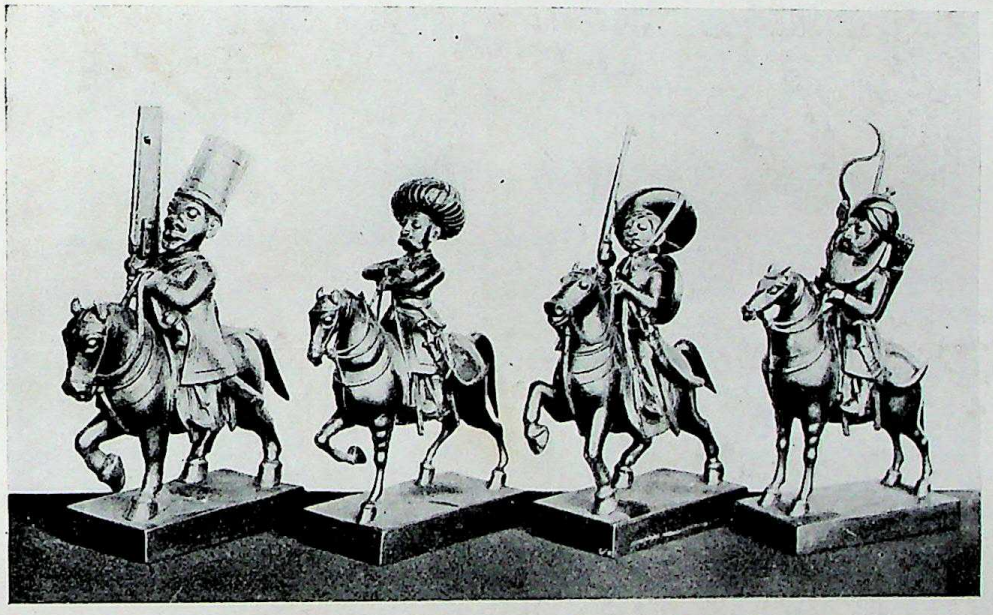


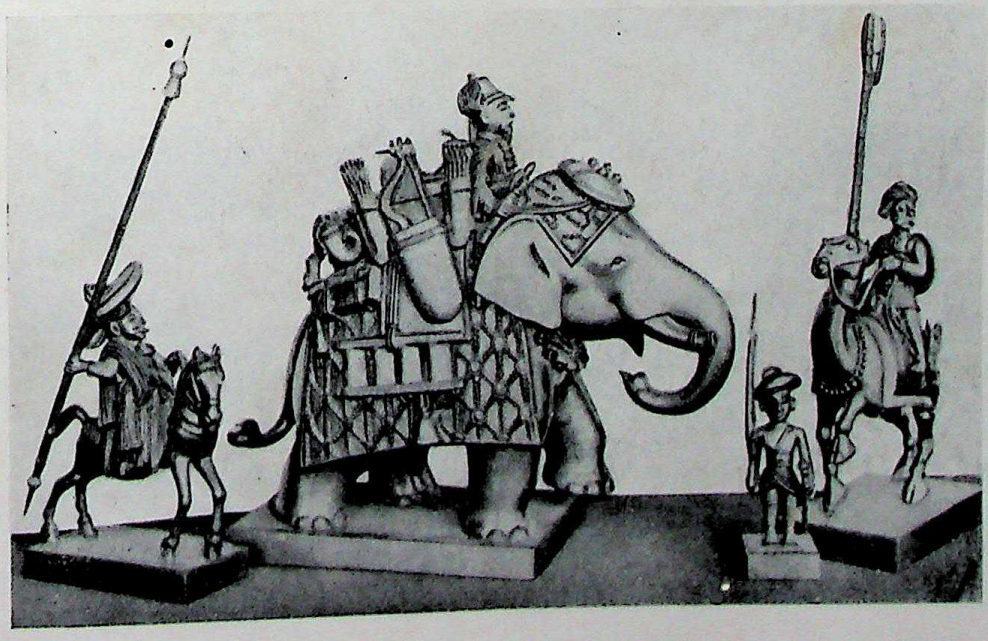
A beautifully made metal toy covered bullock-drawn vehicle.

Photos : A. S. Vaswani



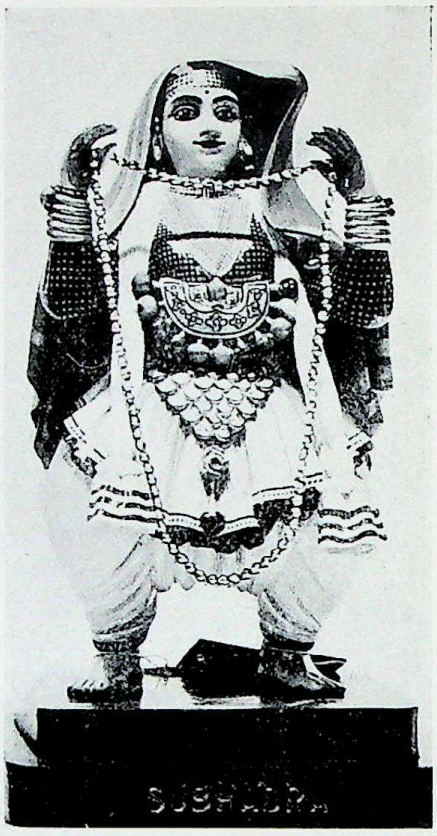
Brass figures and toys from Bengal.
(*Photo : A. S. Vaswani*)





Brass toys from Vizagapatam. The figures are notable for their skilful modelling and finish—illustrating cartoon-wise, a whole gamut of military swagger in man and beast.

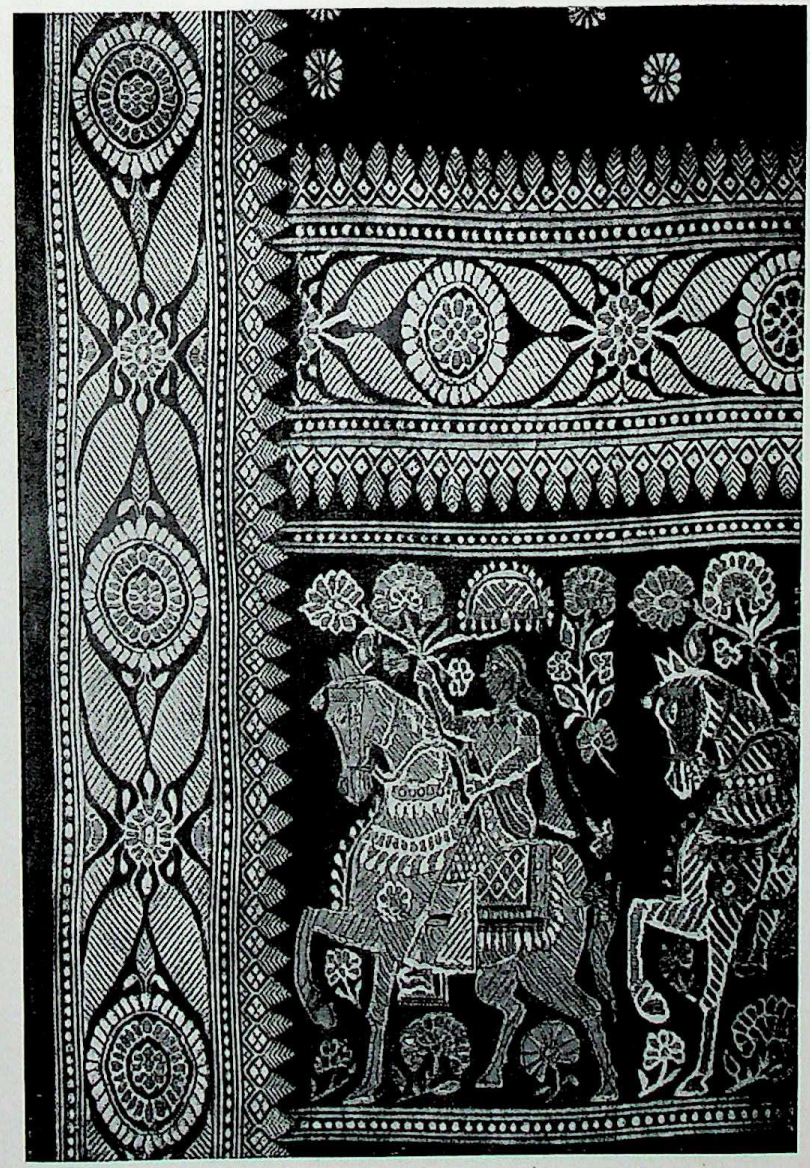
(From *The Journal of Indian Art and Industry*)



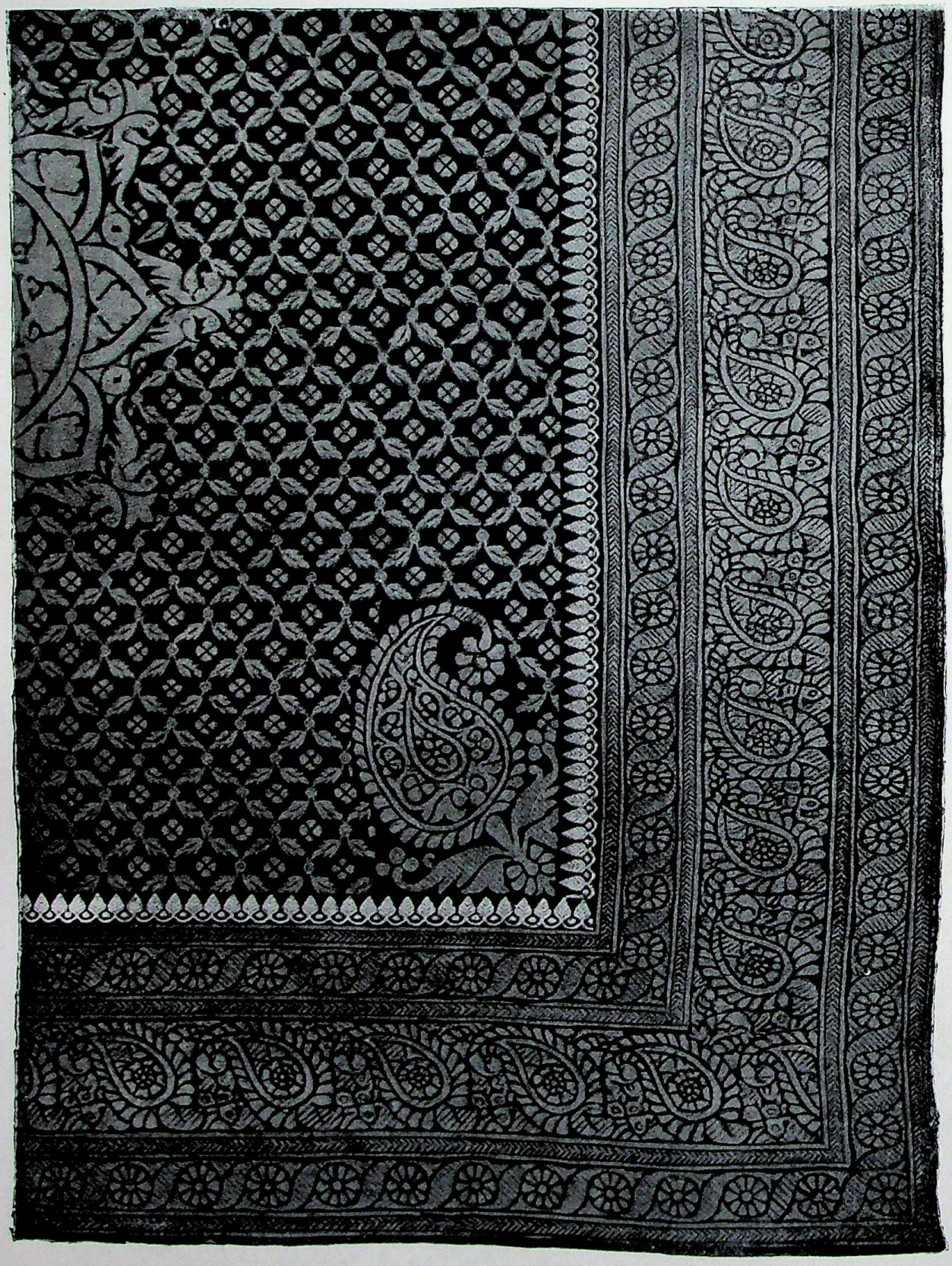
Gaily dressed Indian rag dolls.
(*Photos : A. S. Vaswani*)

A group of dressed dolls representing a Hindu marriage procession.
(From *The Journal of Indian Art and Industry*)

Part of a fine Baluchar Butidar silk sari from Dacca. 19th Century.
(*By Courtesy of Baroda Museum and Picture Gallery*)

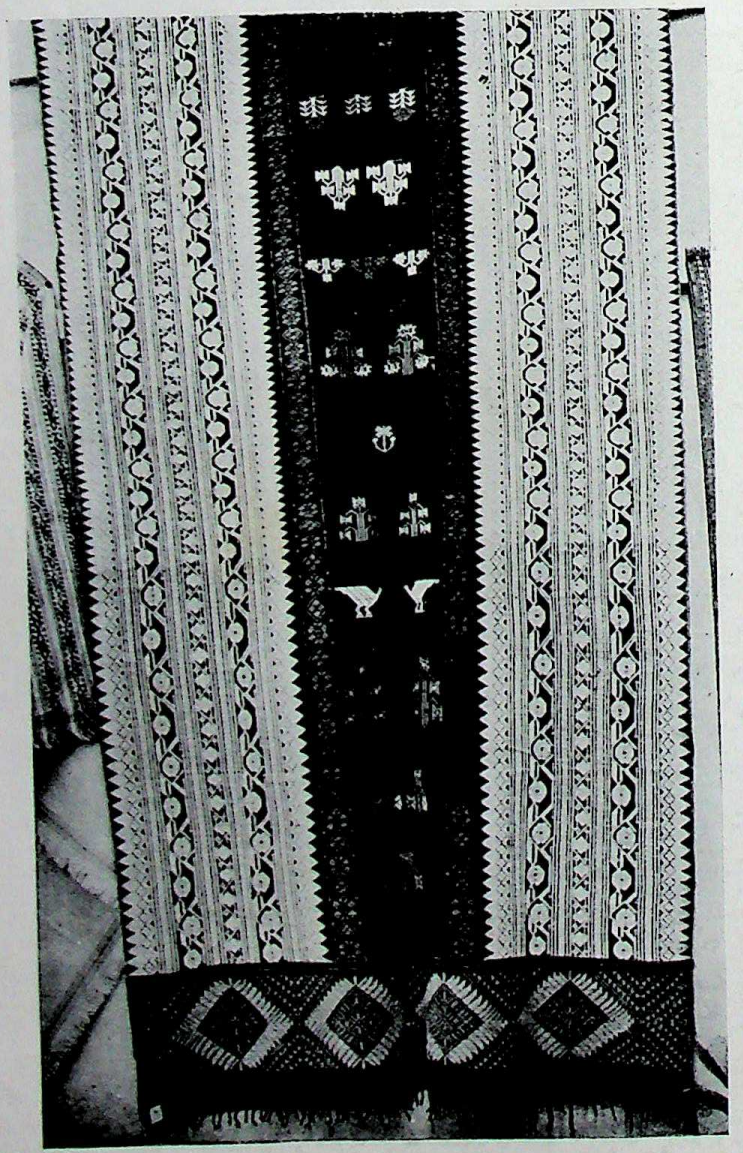


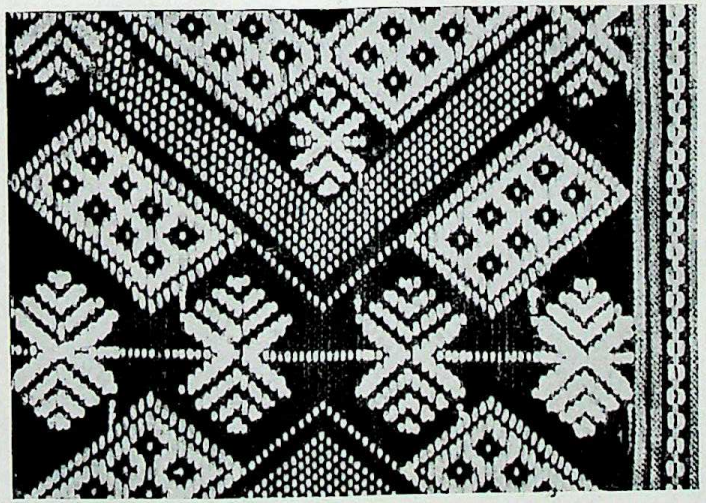
Part of an old Baluchar Butidar sari. The equestrian figures are traditional.
(From *The Journal of Indian Art and Industry*)

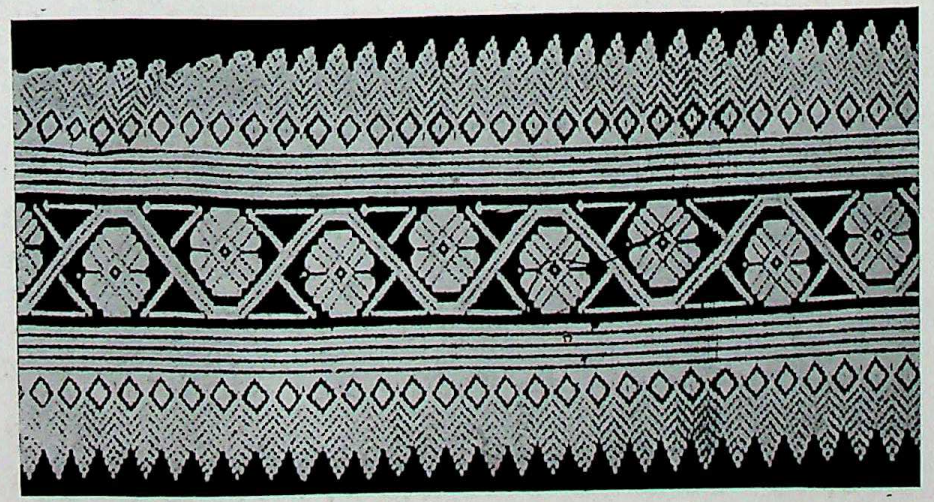


A beautiful *kinkhab* from Western India, much lighter in texture than the Banarasi. The design is the *pau kothama chardani*, meaning four petalled flowers in diamonds formed of leaflets.

(From *The Journal of Indian Art and Industry*)



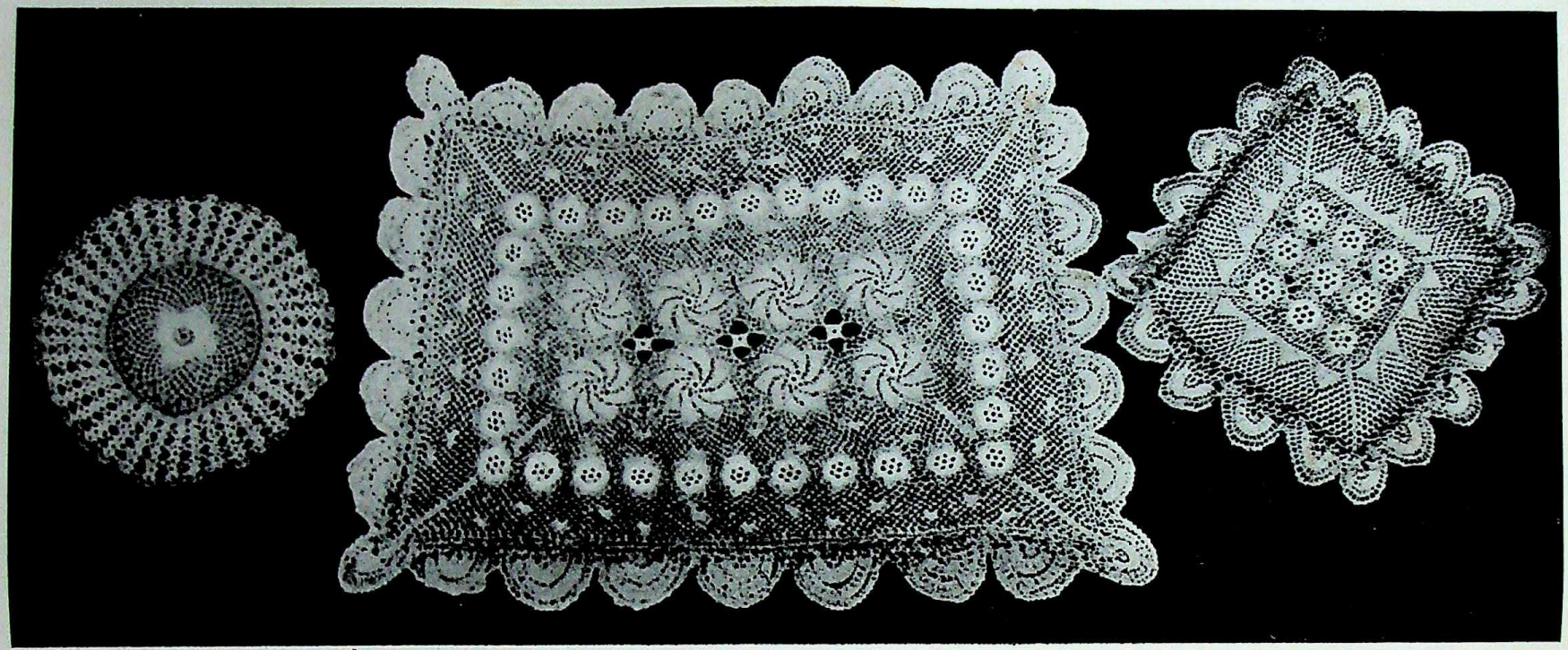




Parts of a handwoven shawl (*left*) and other handwoven textiles of Assam.
(*Photos : A. S. Vaswani*)

Left : Design motif from a Banarasi brocade in gold.
(*Photo : A. S. Vaswani*)

Bottom : Handmade crochet lace from Narasapur.
(*Photo : R. V. Rao*)



A brief review of the usual embroidery of other parts of the country is now in order. Agra, Delhi, and Banaras, all in Uttar Pradesh, have always been famous for their rich embroideries in silk as well as in silver and gold thread. Today, beautiful curtains, bed-covers, table centres, cushion covers, etc., are produced in silk, satin, and velvet, embroidered in coloured silks, with a sparing use of gold and silver. The designs are mostly padded, and the embroidery in satin-stitch is often done with two needles used at the same time, one inserted from below to tie down the upper thread in position.

In Kathiawar, Kutch, as well as in Sind (Pakistan), both the darning and the chain stitches are used with exceptional skill, sometimes to produce literally embroidered pictures — gorgeous and elaborate. In Kathiawar, two distinct kinds of embroidery is produced : the first in greatly elongated darning-stitch, almost like the satin-stitch ; the other in chain-stitch. The first is the needlework of the peasant classes, the latter of the upper strata of society. There was a custom formerly by which on marriage a girl was given two *choklas* or embroidered handkerchiefs, which after the ceremony were hung in the bedroom as wall ornaments. Embroidered on coarse material, mostly blue cotton, they are fully covered by elongated stitches in floss silk, so closely embroidered that the original texture of the cotton can hardly be seen. Sometimes, the *choklas* were further decorated with a border of patchwork in white or red cotton. Another popular article produced in Kathiawar is the *nati* or head-dress for a child on which the women devote much patient labour. It consists of a small cap ending in a square flap which hangs down the back. The *nati* is always richly embroidered in chain and satin-stitches, and it may have tiny mirrors inserted within the design. The embroidered *toranas* or festoons are placed over the doors of inner rooms of the villagers' huts. These are long strips of cloth with pendants hanging from the bottom edge. Richly embroidered, they are made of differently coloured pieces of cloth. Among the poor, they will be of cotton with satin-stitch embroidery ; among the rich, of silk and in chain-stitch.

The Kathiawar embroidery is lavish, elaborate and colourful, especially on the *choli* (tight short blouse) and the frilled skirt or *ghagara*, the traditional dress of the Kathiawari women. According to some, this embroidery is rather on the gaudy side ; even so, it is strikingly attractive in its own garish simplicity. The stitches most commonly used are, as stated before, the darning and the chain stitches, but sometimes, the herringbone-stitch is also used. The satin-stitch is not common here, but the long elongated darning-stitch almost serves the same purpose. However, the satin-stitch may sometimes be used to fill up large square or triangular areas.

The basic fabric used is a bright homespun cloth, the embroidery being done with coloured cotton, wool, or coarse silk.

The embroidery of Kathiawar, Kutch, and Sind is very similar and this is not surprising considering their geographical affinity. A rather curious fact is that though the embroiderers of these places are mostly peasants and cowherds, neither the cow nor the milkmaid ever form motifs of their designs.

The embroidery of Sind in Pakistan manifests many forms due to multiple influences — the darning-stitch of the *phulkari* of the Punjab, and the chain and interlaced stitches of Kutch, and even the use of tiny mirrors within the designs. However, in certain parts of Sind like Shikarpur, Mirpurkhas and Khairpur, a kind of buttonhole-stitch is also met with, especially for foliage. This brings out the stalks and leaves into greater prominence, making the embroidery appear rich and heavily worked. This particular stitch is hardly ever used for flowers. The designs are simple yet bold, and the colours more subdued in comparison to those of lower Sind where the influence of Kathiawar and Kutch seems to have been greater.

The distinctive embroidery of Kutch is known as the *kanbi* after the *kanbis* (farm cultivators) and *shirs* (cowherds) who generally do it. As a matter of fact, any embroidery which has mirrors (*abalas*) inserted into the designs and is done with an interlaced stitch is commonly called Kutch embroidery. But the genuine embroidery of this place is done with the chain-stitch as the basic one. Mirrors may or may not be used. The popular colours are orange, yellow, mauve and black, on a rough homespun fabric that is usually brown. Often herringbone-stitching is done on bright red cloth to produce floral designs, with the outlines and stems in chain-stitch.

The embroidery of Kutch is mostly carried out on articles of rural use and personal clothing, like trappings for cattle, the frilled skirts and the *cholis* of the village women, *toranas* for festooning the doorways and a kind of wall tapestry — all indicative of a pastoral mode of life.

The exact method of doing the original Kutch embroidery has thus been described by Mrs. K. S. Dongerkery :

"The Cutch embroiderer uses a hook like a crochet needle to facilitate and speed the work. The thread is introduced from beneath the fabric and the hook is used to probe the fabric which is kept taut by means of a wooden frame. The designs are large and flat and sometimes mirrors are interspersed to add to them a touch of glamour. The outlines of borders are sometimes embroidered with a laid stitch or couching, as it is called, or with the herring-bone stitch . . . Another characteristic of the embroidery of Cutch, which is to a certain extent common to that of Kathiawar, is the gradual introduction of coloured thread, especially in the chain stitch work to indicate the veins, the stems and the various tints in the motifs, while preserving the flat and bold decorative effect."

An important centre for fine embroidery is Dacca in Eastern Pakistan. So famous has this place been that in A.D. 1774, Abbé de Guyon wrote of the *zardozi*

work of the place in these words : "From Dacca come the best and finest embroideries in gold, silver and silk, and those embroidered neck-cloths and fine muslins which are seen in France." In his *Cotton Manufactures of Dacca* (1851), Dr. James Taylor has given a detailed account. The cloth, generally cotton, is stretched on a wooden frame after the design has been transferred or stamped on it. For the needlework and in *kasida* work, silk of an old gold colour is used, the stitches being either darn (olden days) or the chain.

Very similar to the embroidery of Kathiawar, Sind, and Kutch, is that of the Banjara gypsy tribes of Hyderabad in the Deccan. The chief stitches used are similar to the satin and the herringbone, and tiny mirrors are often used as additional decoration.

The beautiful Azamganj satin-stitch embroidery has to be seen to be really appreciated. So close and fine is the work that it needs a magnifying glass to see the individual stitches, in silks of delicate colours, producing the effect of pastel paintings. Unfortunately, high quality work of this nature is no longer produced.

Sir George Watt gives little importance to the *soznis* or quilted and embroidered bed-covers of the Punjab and Peshawar. About the Punjab, both East and West, he says : "This is usually in coarse cotton cloth elaborately covered with great medallions in purple and red. As a rule, they are overloaded with ornamentation, and strictly speaking, are, therefore, not very artistic."

Much better are the *soznis* of the frontier town of Peshawar. "Instead of manifesting great meaningless patches of colour, the Peshawar *soznis* are most intricately and elaborately conceived and the design runs through every part and is consistently maintained. The scheme of colour, instead of purple and crimson, might be described as blue and green with a fair admixture of dull Indian red."

Dori work or braiding embroidery seems to have originated in Kashmir sometime in the middle of the last century and is most commonly done on woollen fabrics, especially shawls. The thin braid may be gold, white, or any pale colour, no thicker than ordinary knitting worsted. It is placed on the fabric and sewn on in a special way to follow the design. The needle is inserted beneath the braid, forming a loop of thread over the braid, which is now turned at right angles and a second stitch made underneath. The thread used for the sewing is then passed two or three times round the braid, close to the surface of the cloth. The workman turns the braid round once again, and continues as described above. This twisting of the thread around the braid and the turning of the braid itself produces the unusual knotted appearance that is so characteristic of this type of embroidery.

Appliqué embroideries are also common in India. Pieces of cloth of different colours are placed on the surface of the cloth and embroidered along the edges and sometimes also over the surfaces, and in this does not differ much from the same type of work produced elsewhere in the world.

A beautiful kind of embroidery that is not so well known is produced in the Karnatak region. This is the *kasuti,* the word itself meaning "embroidery" in the Kannada language spoken in the region ; its Marathi equivalent is *kashida* or *kasuda.* It is said that the most beautiful *kasuti* embroidery is done in those places which were, at one time or the other, under the domination of Chalukyan and Vijayanagar rulers, dynasties that were responsible for the cave-cathedrals of Badami and many other forms of artistic achievement in the southern parts of the country. The places where it still exists are Bijapur and Dharwar, the Belgaum district, Miraj, Sangli, Jamkhandi, and the territory of Goa. However, it has never been a cottage industry, but only a handicraft and a pastime for the female members of the family, primarily meant for personal use.

"To be able to turn out this kind of embroidery by her own skill was, and is, considered one of the accomplishments of a woman," says Mrs. K. S. Dongerkery. "She is satisfied if she learns how to stitch so that she may embroider designs to her taste on her own sari and bodice and on the few garments used by her children. If she could embroider her own *kubsa* (bodice), the *sharagu* (generally known as *pallav*) of her sari, the *kunchi* (bonnet and cape combined), *kulai* (bonnet) and *langa* (skirt) of her children, she was more than happy."

The designs of the *kasuti* are related to temple architecture, the southern *gopurams,* the lotus flower, the palanquin and the *rath* used for carrying deities form one place to another. Among the common objects represented are the cradle, the sacred bull, the *tulsikatti* that is the enclosure for the sacred tulsi plant, animals and birds, the elephant with its howdah, peacocks in all the glory of their extended plumes, and the ever-popular parrot. Rarely one will see horses, lions or tigers, but never cats or dogs. Floral motifs are the most popular, the lotus being the commonest. Geometrical designs are also used and point to the ancient lineage of this embroidery, for as we read in *Book of Old Embroidery,* "It will be found that the early work of a country or people is often geometrical, that is, cross-stitch, canvas stitches, or counted stitches are much used, stitches which are regulated by the warp and weft threads and can therefore be worked accurately, almost mechanically, on the web of the material."

The colours used for the embroidery most frequently are purple, crimson, orange, green, all in clean bright tones, the blending of the shades being harmonious and dignified, the colour combinations most common being red, orange and purple, or orange, crimson and green. Blue and yellow are rarely used in combination. Mrs. Dongerkery says, "It would appear that the designs were formerly worked out with bits of silk thread of various colours, picked up from the remnants of tassels — each about six inches in length — of the

sharagu of a sari, fresh from the handloom." The *pallavs* of old saris also constitute a source of the embroidery silks. The silks may however be obtained from Mysore and embroidered on hand-woven cloth of a dark tone, often black. The famous *ilkal* saris, named after the place near Bijapur where they are made, are really charming with their borders in red, green or purple, the embroidery covering the whole material. The lay-out of the embroidery has been carefully described by Mrs. Dongerkery : "Near the *sharagu* come the bigger designs. These are followed by designs of diminishing sizes and differing composition, care being taken to avoid repetition. Parallel to these are alternate rows of floral motifs. As the patterns become smaller in size, the distances between succeeding patterns become wider and wider. The embroiderer often begins with a *gopuram* or an elephant and ends up with clusters of stars or even with mere dots."

According to the abovementioned author, four kinds of stitches are used : the *gavnti* or line and back-stitch, the *negi* or running-stitch, the *menthi* or cross-stitch, and *murgi* or zig-zag running-stitch. The commonest is the *gavnti* and really beautiful designs are embroidered with it alone, the design appearing the same on both sides of the fabric. The stitches are made on both sides. Running stitches are completed on the right side and then the needle run along the other side to fill in the gaps in stitches left on the reverse by the stitches made on the right side. The *negi* produces the effect of a woven pattern, while the *menthi* stitch is used generally "to fill up the background of a pattern, as for showing a peacock's plumage or the massiveness of architecture."

Summing up *kasuti* embroidery, Mrs. K. S. Dongerkery says : "The result achieved is perfection to a fault, and most of the designs would easily be mistaken for printed or woven designs. It is worthwhile examining the accuracy of the design when no canvas is used and the design is worked directly on cotton material. The counting of the threads for spacing the stitches equally is a task which puts an enormous strain on the eyesight and patience of the embroiderer."

The Bengali *kanthas* (literally, "rags") are embroidered wraps made by women of all classes, both in West Bengal and East Bengal. The work is done generally on old saris, sewn together neatly. The saris, old and discarded, are placed on top of one another till the desired thickness is reached, and the edges folded and loosely tacked together. The fieldwork is then quilted in white thread. Coloured threads extracted from the borders of the saris are sewn along the borders of the pile and the surface ornamented with various human and animal figures, foliage and floral designs. It is said that it takes anything from six months to three generations to make a *kantha* that when opened shows "its full beauty, revealing the artist's depth of imagination, taste and skill. It is a treasured possession in every home." (Ajit Mookherji.) Though in the common type, an original and reverse side can be seen, in the finest ones, the embroidery stitches are so cunningly made that the designs appear the same in shape and colour on both sides of the fabric, so much so, that it may be difficult to say which is really the obverse side and which the reverse.

In some *kanthas* the embroidery starts from the centre with a lotus motif and goes round and round spirally to decorate the centre of the field. The "Tree of Life" motif extends from each corner towards the centre. In another kind, the *kantha* is divided into panels, each filled with rich embroidery. The colours most popular are blue, yellow, red, and black.

Different kinds of stitches are used, the commonest and most typical being very small darning stitches, giving dotted lines. Even a large area may be covered with closely made lines of these stitches. For continuous lines, back stitches may be employed (cf. the *gavnti* of *kasuti* embroidery). The outlines of the design is generally in dark blue, filled with stitches of the same colour or in contrasting harmonies of red, etc. Sometimes, the outlines and the areas enclosed by the outlines are in blue, with stitches in red between the outlines and the field. After the design has been embroidered, any areas left may be further reinforced with stitches in white running parallel with the outlines of the motifs.

Dr. Stella Kramrisch believes that the *kantha* must be of ancient lineage though "none of the known examples can be dated earlier than about A.D. 1800 and only one dated *kantha* is known. The year of its manufacture is 1875 ; the Bengali year 1282 being embroidered in its border field."

Though made throughout Bengal, the majority of *kanthas* come from Eastern Bengal, especially Mymensingh, Jessore, Khulna, and Faridpur. The designs used are mostly created by the women who do the embroidery — plants, animals and human figures predominating. To quote Dr. Stella Kramrisch again :

"Inextricably one with the symbolism of its substance or ground — the rags patched together by threads is the symbolism of its design and the technique of stitching. The interpenetration of the coloured design, stitched into the ground and of the design result in a unity of substance and technique by which a new texture is effected ; the old rags are not only joined but appear transformed ; the white ground with its ripples and patches is now alive with a throbbing or velvety texture ; the dead rags are changed into a vital and rich whole of multi-coloured pattern and meaning." (*Marg*, III, 2.)

Seven different kinds of *kanthas* are made :

The *Lep :* a warm wrap for the winter, about six feet by four feet in size, and thickly quilted.

The *Sujni :* generally large and rectangular in shape, about six feet by three feet in size ; also used as a bed-spread or blanket and on ceremonial occasions.

The *Baytan :* a wrap for books and valuable articles. It is square in shape, about three feet each way, with wide borders made of rows of animal and human figures. The centre is also embroidered, usually

with a lotus round which are grouped other common objects. The four corners may also show the lotus or the *kalka* design.

The *Oār :* this is a pillow-case, rectangular in shape and about two feet by one and a half foot in size. The decorative motifs are simple as a rule, perhaps only a series of straight border lines or conventionalised trees with birds. An extra ornamental border is always sewn round the four edges.

The *Arsilata* : This is a wrap for combs and mirrors. Naturally it is a narrow rectangle in shape, about eleven inches by six inches in size. The design motifs are generally trees, lotuses, or creepers.

The *Durjani, Thalia :* a wallet, square in shape. The borders are embroidered with an additional lotus design in the centre. To make the wallet, three of the corners are folded inwards so that their points meet in the centre. The edges are next sewn together and a string fixed to the loose top end and wound round the wallet to secure it.

The *Rumal : rumal* means a "handkerchief" and so naturally this *kantha* is square in shape, the design being simple, mostly a lotus in the centre round which are arranged a variety of other motifs.

Ajit Mookherji draws attention to the fact that "some of the ritual designs on *Kanthas* — particularly *Mandala* and *Kalasa* designs — are frequently to be seen. These designs are also executed by women only on festive occasions in fulfilment of certain vows *(Vrata-Alipana)*. The form of the *Mandala* design in the *Kantha* is of particular interest. The centre of the *Mandala* is almost invariably filled in with the *'Sata-dala padma'* or hundred-petalled lotus. The petals are not always exactly one hundred in number but are made as numerous as possible, so as to suggest a hundred-petalled lotus. This design is surrounded by several concentric rings of thread work. They are always different from one another. The entire design is then circumscribed by radiating *Kalasas* (pot-design) and sometimes by *Sankhas* (conch-shell) design."

Appliqué work is also quite common on *kanthas* and is of two kinds : the first is used on large areas as on flags and canopies. The motif, the lotus or the lion, is cut out of red cloth and then stitched onto a background of white cloth. In the second type, coloured clothes are cut up into narrow strips and sewn on as a braid round the outlines of the design. This is most common on pillow-cases. Before the ribbons are sewn on, their edges are turned in.

To summarise in the words of Dr. Stella Kramrisch : "For if the kantha is a work of thrift, it is also an offering of love ; it is presented at a festive occasion to a near relative, for being worn as a wrap in winter — these kanthas are large and thickly quilted — for keeping books and valuables or mirrors and combs wrapped, or as pillow cover of very small size, folded as wallet, and, if very large as a bed-spread, on which honoured guests may take their seat."

Quite a deal of embroidered textiles are turned out in the south. Some styles like those seen on temple hangings seem to be of very ancient lineage ; but the practice of embroidering silks and muslins may be of much more recent origin and was probably introduced into the southern regions by the Mohammedan invaders. The Madras work has thus been classified by Dr. G. Bidie :

1. Muslin embroidered with cotton thread.
2. Silk embroidered nets.
3. Nets embroidered with silver thread.
4. Nets embroidered with gold, or silver and gold thread.
5. Nets embroidered with gold wire and beetles' wings.
6. *Dungari* embroidery with floss silk.
7. Woollen fabrics embroidered with silk and gold thread.

Dr. Bidie writes : "Embroidery is an art in which the people of India particularly excel owing to the deftness of their fingers, good taste in flat patterns, and great patience . . ."

Brief mention must also be made of a minor form of embroidery that used to be produced, and perhaps is still produced to a very limited extent. This is embroidery in gold and beetles' wings, embroidery that exhibits all its loveliness by lamplight, "the glint of the pieces of the gold-beetles' wings adds considerably to the richness even by day, and forms a relief to the otherwise monotonous effect of the gold." No wonder it was so popular with Europeans for making ball dresses.

Another lovely variety is *mina* (enamel) embroidery. The floral design is first embroidered in bright silks and then outlined with gold, giving an impression of cloisonné enamels ; hence its name.

Assam is also known for its embroidery, where all kinds of cotton and silk fabrics are elaborately ornamented, mostly in silk, cotton, gold and silver thread. The loom is commonly used for the work, but there are few professional weavers, the work being done by the women in their spare time. The usual articles produced are :

The *Chaddar :* a fine sheet, elaborately embroidered with designs consisting of fruits, flowers and birds in coloured cotton or silk.

The *Khania-kapar :* a highly ornamented shawl made of cotton , "usually very finely woven and elaborately adorned along the borders with graceful designs of flowers and creepers." Sometimes the whole of the shawl may be embroidered with flowers in spots. The work is carried out with coloured silk threads, with the addition of gold and silver wire.

The *Cheleng :* This is like the above, but smaller and less heavily embroidered.

The *Paridia-kapar :* another beautifully embroidered shawl, generally of very fine material. This is the highest form of weaving in Assam and used only by the upper classes. The embroidery is mostly done in gold and silver twist, the commonest designs being flowers and birds or graceful curves arranged symmetrically along the borders.

The *Rihas* : embroidered scarfs made of silk.

Besides the above embroidery done on the loom, needle embroidery is also widely practised, the commonest being as follows :

"*Karsipi-kapar,* a richly embroidered cotton cloth used as a wrapper. It is made of very fine material and decorated profusely with representations of butterflies, animals, and flowers worked in flattened gold wire. *Rihar-achal,* the ends of a silk *Riha* or scarf, commonly worn by women. The borders and ends are usually decorated with gold thread twisted with steel wire, or with gold thread alone. *Kaparer-achal,* the ends and borders of a cotton *chadar,* ornamented in much the same way as the *Rihar-achal. Garuchok,* the ends of a round pillow. The material is usually imported woollen broadcloth, but the decoration consists of flower designs worked generally in cotton of different colours. The embroidered portion is usually 8 or 10 inches square. *Bata-dhaka,* the ornamental cover of a betel-tray decorated like the *Garuchok.* It is usually 18 to 20 inches square. *Talicha,* an ornamental cloth, usually 4 or 5 feet square, spread over an inferior cloth used for sitting on. The material and decoration are the same generally as for *Garuchok* and *Bata-dhaka.*" (Quoted by T. N. Mukharji.)

It is said that the textiles of the Naga Hills in Assam and the neighbouring state of Manipur are "characterised by their primitive designs, quality and colour "— the favourite colours being maroon and black. The design motifs are chiefly abstract and highly conventionalised representations of human and animal figures.

Such are the embroideries of India, the India of pre-partition days. And we cannot do better than conclude in the words of Mrs. K. S. Dongerkery :

"It has been pointed out that the embroidery of Kashmir represents the colourful and ravishing scenes of nature that abound in that paradise on earth, that the embroidery of Sind, Cutch and Kathiawar bespeaks the pomp and pageantry of a princely order that is fast disappearing, and that the *kasuti* of the Karnatak is a manifestation of the spiritual and religious yearnings of a sober people who have a strong disinclination to give up their domestic surroundings. The simple, yet beautiful, *chikankari* of the Gangetic plains, too, must have its own message for the people, no doubt. Would it be wide of the mark if a suggestion was made that the purity of the waters of the holy rivers is reflected in *chikankari.*"

NOTES ON EMBROIDERY STITCHES

The reader may be a little confused by the constant references to different embroidery stitches in the preceding part of the chapter. The following brief descriptive notes explanatory of these stitches is therefore necessary.

Darning Stitch : the needle is run along the cloth, taking up small areas of the cloth at intervals. Correctly, the space between each row should be same as the length of the stitch, the stitches in each row alternating with the preceding and following rows.

Running Stitch is rather similar. The needle runs back on the other side to fill the gaps between the stitches. It is used chiefly for outlining while the darning-stitch is used for filling areas or backgrounds.

Satin Stitch : the needle takes hold of the outlines of the area to be decorated, running backwards and forwards, to fill up the whole area. This is the Surface Satin Stitch. The stitches must lie evenly and close together. The thread is taken over the area to be filled and returned beneath the cloth slightly beyond the starting point, ready for the next stitch. This is the classic Satin-stitch. In this case, the embroidery is the same on both sides of the cloth. The satin-stitch may also be padded by thick threads first used to cover the area that is to be subsequently embroidered in this stitch.

Stem Stitch : This is a kind of back stitch worked from left to right. The needle comes out at the end of the line to be covered, enters the cloth a little farther along the right, to emerge again a short distance to the left, thus making a long step forward and a short step back. This stitch is mostly used for outlining, flower and leaf stem, etc.

Cross Stitch : the stitch is in the form of a cross, the crosses lying close together.

Knotted Stitch : the thread is first wound round the needle and then fixed by it as the needle is returned through the centre of the knot.

Herringbone Stitch : this is an open form of Cross Stitch, the crossing of the stitch not being in the exact centre but near the needle's point of emergence.

Buttonhole Stitch : very useful in cut-work and for scalloping. This is a kind of half-chain with the loops passing round the edge of the fabric or of the cut areas.

Chain Stitch : this is a very suitable stitch for curved lines and builds up a line of back stitching on the reverse of the cloth. It consists of a series of looped stitches drawn around the needle and inserted successively within the immediately preceding stitch to form a kind of chain. This is a true outlining stitch and is not satisfactory when used to fill an area, although it is sometimes used for this purpose. In the *Zig-zag Chain Stitch,* the links of the chain form a zig-zag.

ART OF THE INDIAN DYER

"Just as the Indian craftsman in general expresses the people's instinct for beauty, so the Indian dyer expresses in his art the Indian women's love of colour. From the saffron-coloured multipleated skirts and blue veils of the *Jatnis* of Delhi and the glowing reddish brown saris of the Kumbi women of the Deccan to the rippling rainbow saris and veils of the women of Rajputana, we see everywhere the enhancement of the dyer's art."*

The most skilful dyers were those of Calcutta, Saran, and Darbhanga in eastern India ; of Masulipatam, Salem, Chingleput, and Coconada. The Amritsar, Kashmir and Ludhiana dyers were famous for their work with silk and wool. Skill in dyeing *pagris* (headwear) is best seen in the work of the dyers of Rajasthan, and particularly of Kotah and Alwar. They could treat two shades so perfectly as to produce a kaleidoscopic effect, one colour showing through the other in a fascinating manner.

Unfortunately, however great the skill of the Indian dyer may have been, dyeing as an art-industry is no longer of any importance in the country. The land that produced so many natural raw materials for creating a great many different colours has been invaded by foreign synthetic dyes — not always as stable or fast as many of the indigenous products, but available in a greater range of hues, tints and shades, and certainly much easier to use.

PLAIN DYEING

As far as plain dyeing, mostly in one colour, is concerned, only brief mention need be made of the beautiful and varied shades the Indian dyer or *rangrez* was, and is, capable of achieving.

The dyers of Bengal were best noted for their simple uniform colours, with the fabrics given a narrow border of a different shade. The Nagas of Assam are even today noted for their beautiful *manjit* red and rich Chinese blue. Then we have the brilliant yellows, magenta and purples of the Punjab where cotton, silk, and wool are all dyed with the same traditional skill. A rich dark red is popular in Madhya Pradesh and the dyers of the state are experts at it ; the dye used is the bark and roots of *al* or Indian Mulberry (*Morinda tinctoria*). The smaller roots yield a finer dye than the thicker ones. The dye, which may be red or yellow, is not only used in plain dyeing but also in calico printing and for the dyeing of carpets.

The skill of the *rangrez* of Rajasthan is as great as that of the calico-printers of the region. It has even been maintained by some that "the skill attained at several centres such as Alwar and Kotah is unsurpassed by the dyers of any other part of India." In Alwar, a peculiar form of double-dyeing is commonly practised ; that is, one side of the fabric is coloured yellow and the other side red ; or the two sides of the cloth may be dyed red and green without the slightest merging of tones. Actually any two colours may be used to produce a rich and kaleidoscopic effect, "for not only does the flowing sari show a different colour where its fold turns over, but the one colour is seen through the other in a perfectly bewildering fashion." This art of double-dyeing is known also in other places in Rajasthan as well as to the dyers of Nasik where are made the famous silk *pitambars*. In Kotah, beautiful muslins are made in which the warp may be a rich purple and the weft a pale green, so that the fabric exhibits one or the other colour according to the angle at which it is seen.

Brilliant and rich reds are also produced by the dyers of South India, but here the *al* is not used so much as the *chay* dye extracted from the root of the Indian Madder (*Oldenlandia umbellata*). Fine reds are also produced with the *chay* dye extracted from the bark of Brazil or Sappan Wood (*Caesalpinia sappan*). This dye is very strong and only a very little is sufficient for yards of silk fabrics ; it is also suitable for wool and for calico printing, and in Palgat is in great demand for dyeing mats. It is however not fast on cotton. Ordinarily it gives red and violet shades, but produces a chocolate with garcine.

Although aniline dyes are now widely used, formerly only natural colouring materials were employed, producing the soft delicate shades for which Indian fabrics have always been famous. For example, in the Punjab, silk used to be dyed with the following natural products :

Yellow — with the flowers of the Larkspur (*Delphinium* sp.).

Orange — with the flowers of the *harsinghar* or Coral Jasmine (*Nyctanthes arbor-tristis*).

Scarlet — with cochineal giving a crimson colour ; and again with *harsinghar* to produce vermilion.

Purple — first with cochineal and then with indigo.

Green— all shades from light to dark with indigo, followed by *harsinghar,* etc.

It has been stated by no less a person than William Moorcroft that in Mughal times, over three hundred colour tints were in use among the shawl-makers of Kashmir ; but by the early nineteenth century, this number had dwindled down to sixty-four. Mostly vegetable dyes were employed : indigo for purples and blues ; saffron and carthamus for yellows and orange

* *Indian Handicrafts.* A pamphlet issued by The Publications Division, Ministry of Information and Broadcasting, Government of India. Rajputana is now known as Rajasthan.

shades ; logwood for the reds ; cochineal for crimson, and iron filings for black. Funnily enough, according to Moorcroft, the green dye used was extracted by boiling baize cloth imported from England !

The use of indigenous vegetable dyes is practically dying out in the country. And this is nowhere more true than in Bengal. Yet, "In Faridpur a yellow dye was at one time obtained from the flower of the *kusum* tree (*Schleicheria trijuga,* Willd.), the petals of which were dried and boiled and the solution used for colouring yarn. In the Chittagong Hill Tracts blue dye is still obtained from the indigo plant and a red dye is obtained from the roots of the tree known as *ranggach* (*Morinda angustifolia,* Roxb). The roots are first cut into small pieces and smashed into a pulp. Water, into which ashes of tamarind wood have been added and carefully strained away, is then added to the pulp and the yarn is kept soaked in it for a night. It is placed three or four times into the solution and, before the last dipping, is smeared with vegetable oil. In the Chittagong district a chocolate colour is obtained from the bark of a tree which is cut into chips, left in cold water in a cauldron for four or five days and then boiled for at least a day. A quantity of stick lac, separately boiled in water, is mixed with the decoction of bark. Lime juice and lime are also added and the yarn (generally of silk) is steeped for several hours in the resulting mixture and then dried." (*Census of India,* 1931 : Bengal and Sikkim, Vol. V, Part I.) It may be noted that Chittagong is now a part of Pakistan.

In A.D. 1886, B. A. Gupte recorded the process of dyeing silk in the Thana district, a few miles from the city of Bombay. His careful description gives one a good idea of the methods followed in the later part of the last century.

"In dyeing silks red, cochineal, *coccus cacti,* and pistachio galls, *Pistachia vera,* in the proportion of one of cochineal to four of pistachio galls are powdered together and boiled in the copper cistern or dye-beck, and the silk is steeped and stirred in the mixture till it takes the required tint. The boiling mixture is then allowed to cool, and the silk washed several times and dried. If the colour is dull, the tint is brightened by dipping in lemon juice mixed with water. In dyeing orange, the silk undergoes the same processes as for red, except that in addition to cochineal and pistachio galls, the dye-beck contains a variable quantity of *isparuk* or *delphinium.* To dye lemon-yellow, silk is steeped in a hot strained solution of *isparuk* and impure carbonate of soda, and is then squeezed and dried. Though not itself yellow, this solution gives the silk a yellow that does not fade by exposure to the sun. To dye green, yellow silk is steeped in indigo. For black, the silk is steeped in an infusion of myrobalans, and then, for three nights in *nachnee, Eleusine coracana,* and a paste containing pieces of steel, then squeezed, steeped either in cocoa-nut oil or cocoa-nut milk, and washed in plain water. To dye purple, red silk is steeped in an infusion of myrobalans and dried without being washed. It is then steeped in a solution of sulphate of iron and washed. Another way of making a purple fabric is to use black silk for the warp and red silk for the weft. Silk is seldom dyed blue. When blue silk is wanted, the dye used is indigo . . . To dye tawny, yellow silk is boiled a degree less in the alkaline lye than for other shades. It is then taken out, squeezed, kept moist, and without being washed, is plunged into a solution of dyers' *rottleria, Rottleria tinctoria,* and powdered alum in the proportion of fourteen of the *rottleria* to three of the alum, mixed with carbonate of soda and boiling water, quickly stirred and left to stand till the effervescence passes off. In this mixture the silk is steeped, stirred, and left to soak for about four hours. This is the most lasting of the dyes, but the process requires close attention." (*The Journal of Indian Art,* Vol. 1, 1886.)

CALICO PRINTING

"Whenever Indian painted or printed calicoes are mentioned, our thoughts turn first of all to the splendid panels of the seventeenth and eighteenth centuries which made the fortune of the various India companies importing them into Europe," said R. Pfister at a lecture delivered in 1938 at the Burlington House, given under the auspices of the India Society and the Warburg Institute.

The well-known authority, G. B. Baker has also recorded that printed or patterned cottons were a speciality of India. Another proof of the ancient heritage of this craft is to be found in many chapters of *The Periplus of the Erythraean Sea,* written sometime towards the first century A.D. Its author refers to the export of cotton goods from the coast of Coromandel and from Barygaza in the Gulf of Cambay.

In a detailed Chinese account written at the beginning of the fifteenth century and describing the voyages of Cheng-Ho and his retinue, there are many references to imports of printed cottons from Calicut, with special mention of the fastness of the dyes used. Again, Duarte Barbosa, who in the sixteenth century spent a few years in India in the service of the Portuguese Government, has stated that Cambay (Khambat) and Paleacate on the Coromandel Coast produced large quantities of printed cottons, which were exported to other parts of the world. He also states that Siam and China both imported woven materials from these places.

The famous French traveller, Francois Bernier, writing from Lahore on February 25, 1665, describes his visit to Emperor Aurangzeb. He has recorded that the inside of the tent in which he was received by the Mogul emperor was "lined with beautiful, hand-painted chintz, manufactured for the purpose at Masulipatam." (*Travels in the Mogul Empire,* A. Constable's translation.)

Elsewhere we have already mentioned Jean-Baptiste Tavernier's reference in the seventeenth century to the "chites" or printed calicoes of India and the painted curtains and bedspreads of Masulipatam.

"The secret of cotton dyeing, which was the basis of the printing processes, was very slow in spreading beyond the bounds of India, said R. Pfister during his speech. "India has, since very remote times, enjoyed a monopoly of cotton, and in particular of printed cotton goods." And he continued : "It is not surprising, therefore, that the Egyptian earth holds printed fabrics from India."

In view of the importance of the Indian printed cottons, no apology is needed for a fairly detailed description of the process as practised in the south during the eighteenth century. It is based on the records (A.D. 1742) of Père Coeurdoux, a Jesuit missionary of Pondicherry, and extensively quoted by G. P. Baker in his monumental work, *Calico Painting and Printing in the East Indies.*

The cloth was first half-bleached and then steeped in a bath of buffalo milk and powdered myrobalans (*kadu*). After wringing it to remove excess of liquid it was next dried in the sun. On the following day came another washing in plain water. Dried once more in the sun and then in shade, it was folded into quarters or sixths and beaten with a smooth circular piece of fine-grained wood, probably that of the tamarind tree, a stage in the process which prepared the surface of the fabric for the printing or painting. This is known as "beetling" in Europe.

The design was drawn on paper and perforated to form a stencil. The outlines were then transferred by pouncing powdered charcoal through the perforations of the stencil. On this charcoal outlines, a black dye consisting of tannin and acetate of iron was painted to produce black lines. Sometimes a solution of iron filings in water and sour cocoanut palm juice was used for this purpose. Other colours were either painted by hand or produced by mordant-dyeing in combination with indigo resist-dyeing. Previous to this, wax was applied all over the cloth except those areas which were to be finally either blue or green. The wax would naturally act as a resist against the blue or green dyes.

Thus prepared, the cloth next went to the indigo-dyer. When dyed with indigo, the wax was removed by steeping the cloth in boiling water, followed by "dunging" (solution of water with sheep or goat droppings), washing in hot water containing crude soda or fuller's earth, a second "dunging", and a second beetling. Lastly came the third "dunging."

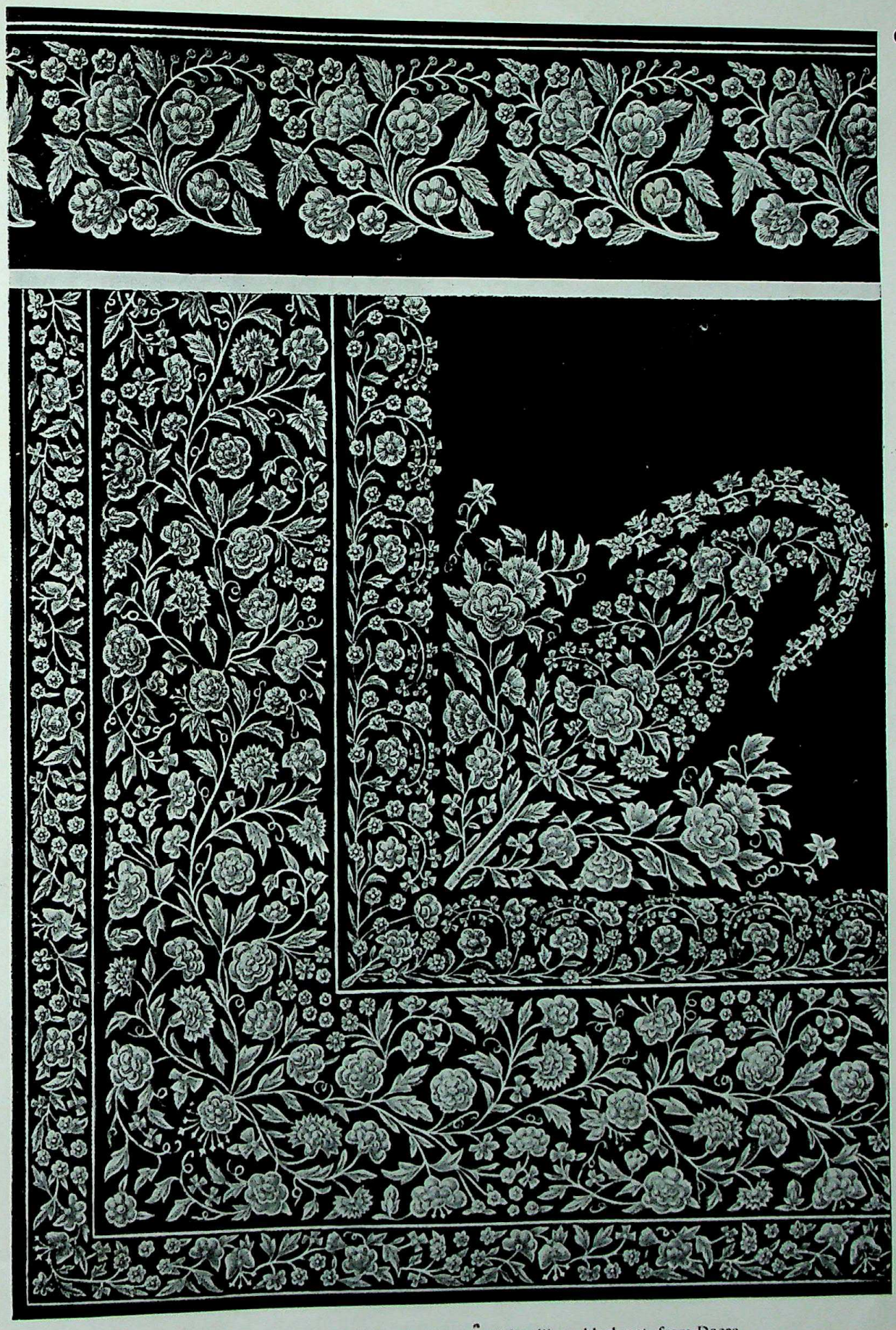
The mordant used was an emulsion of alum and Sappan Wood, the latter to give visibility to the mordant. This was pencilled on the design and fixed the red dye which was next applied by dipping. A weak solution of alum produced a pink shade, while a concentrated solution produced a deep red. The addition of iron liquor (made by steeping pieces of rusty iron in hot rice-water) produced a violet shade.

The red dye used was extracted from the roots of the *chay* or Indian Madder (*Oldenlandia umbellata*). The roots were placed in a vat containing tepid water and brought to the boil with the cloth in it. The latter was next washed and dried in the sun. Then followed the production of the yellow colour, which was generally applied by hand. It was prepared by making a solution of alum, myrobalan fruit and the rind of the pomegranate. To produce a green, the yellow dye was painted over those parts previously dyed a blue.

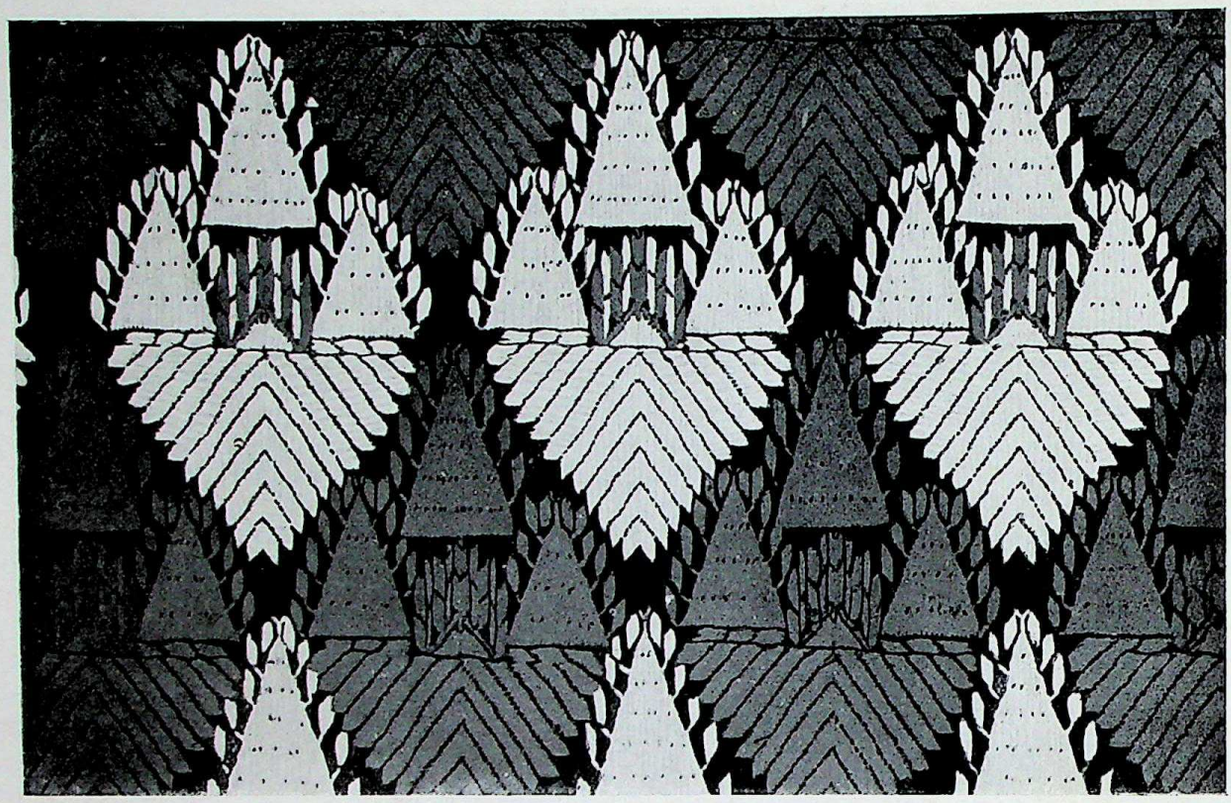
The method of applying the wax-resist is interesting. This was done with the help of a small stick of bamboo, fitted with metal points ; the melted wax was taken up with a ball of hair and twisted hemp wound round the tips of the metal points. However, the yellow dye was applied by means of a swab of wool fibre on split bamboo.

It has been pointed out that although according to the description left to us by Father Coeurdoux, the indigo dyeing preceded the dyeing with madder, the stages might have been reversed in other places. Again, it seems that in the case of printed cottons of the Mughal period, the blue dye was often applied with a brush, making a wax-resist unnecessary. Perhaps a brush was also sometimes used to apply the madder dye. The traditional method if employed is not much different even today. Wooden blocks are commonly used in India for the printing of fabrics but when they first came to be employed is not ascertainable from the facts at our disposal. Some authorities claim that the "printed" clothing seen in the Ajanta frescoes is illustrative of block printing, but this is very doubtful, if not quite improbable. Actually, the oldest blocks, most probably used for the imprinting of designs on cloth, are those discovered not in India but at the burial-grounds of Egypt, dating from the era of the Fatimid Khalifs (A.D. 969-1171). They may be even a few centuries older. In the Rhine regions of Europe, block-printing was practised as far back as the twelfth century, though it is possible that the knowledge of the art was derived from the East, if not directly from India. "Chinese silks, dating from the period of the T'ang dynasty (618-906), in the Shosoin (imperial treasury) at Nara (the ancient capital of Japan), and others of about the same date, which were found by Sir Aurel Stein in the 'Cave of the Thousand Buddhas' at Tunhuang, in Chinese Turkestan, have been described as block-printed ; but possibly in these cases only the mordants were printed on the cloth, which was afterwards dipped in the dye-vat." (A.D. Howell Smith.) From this it seems possible that China was the inventor of block-printing, the country where were produced the first printed books.

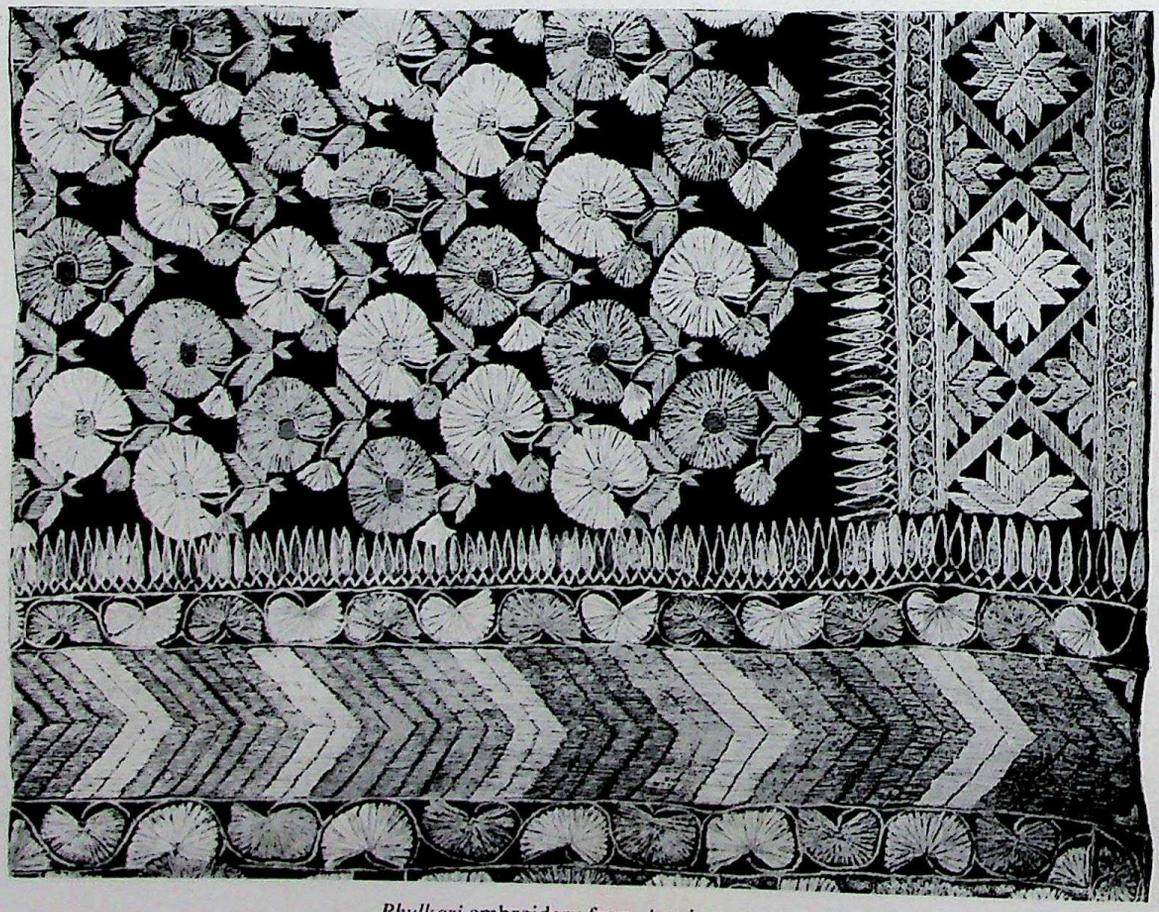
The method of block-printing as practised in India is rather interesting. The cloth is carefully washed, bleached and washed once again. The mordant may be applied with a brush or with the wooden blocks. The printer, seating on the ground or on a low stool, spreads the cloth before him. The design blocks are pressed on pieces of felt kept in small wooden vats containing the different dyes, to take up the colour and then carefully impressed on the cloth where required. To get a good impression, the block is tapped with the



An excellent specimen of Indian embroidery in white silk on black net, from Dacca.
(From *The Industrial Arts of the Nineteenth Century*, by M. Digby Wyatt)



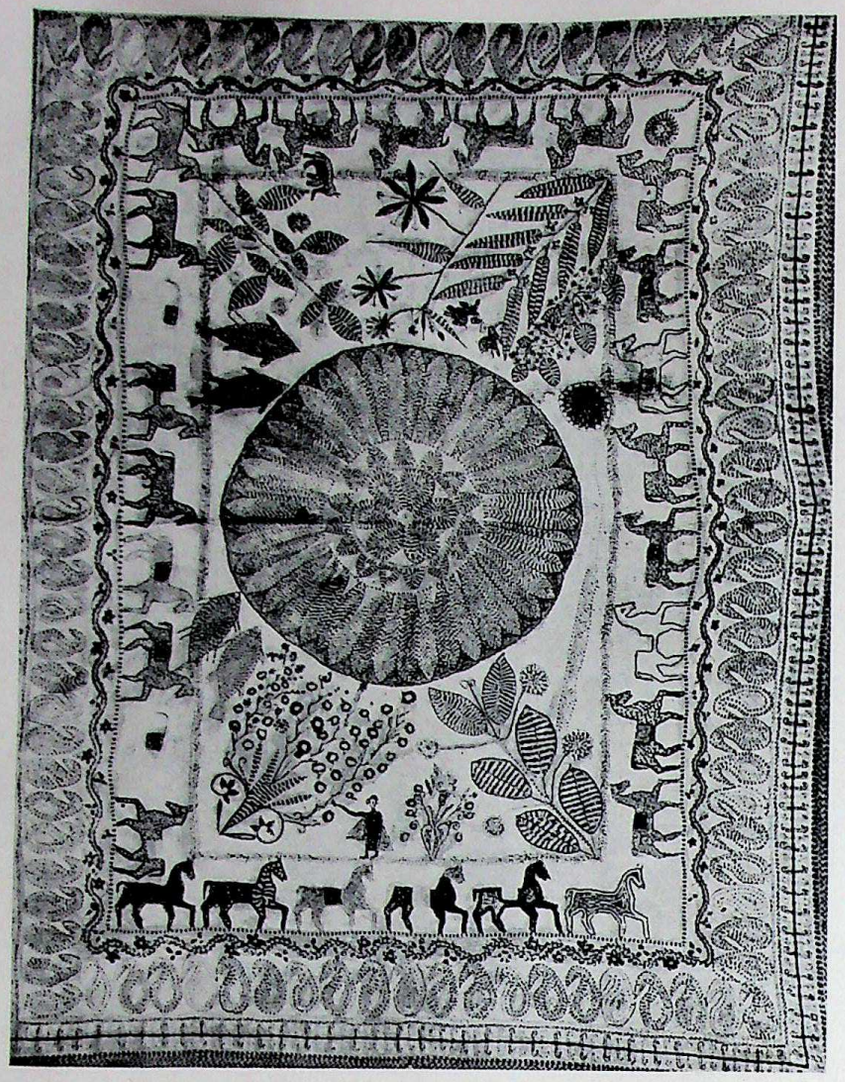
Kakri Bagh embroidery from Hazara. Here the embroidery has ceased to be a mere decoration and become the cloth itself, only a little of the deep red cloth background showing round the motifs. The design is in orange, white and green silks.



Phulkari embroidery from Amritsar.
(From *The Journal of Indian Art and Industry*)

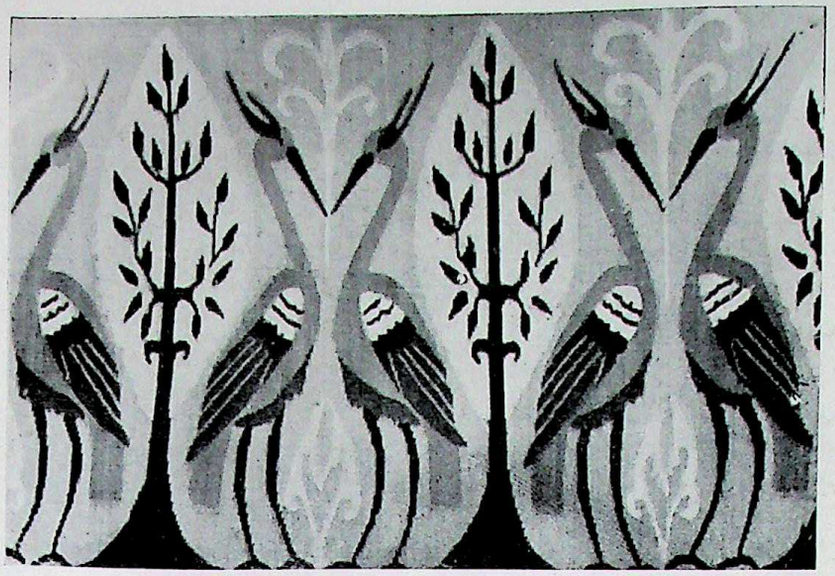
Corner of a rich and beautiful woollen Kashmir embroidered shawl — a fine specimen of gorgeous colour and elaborate execution.

(From *The Industrial Arts of the Nineteenth Century*, by M. Digby Wyatt)



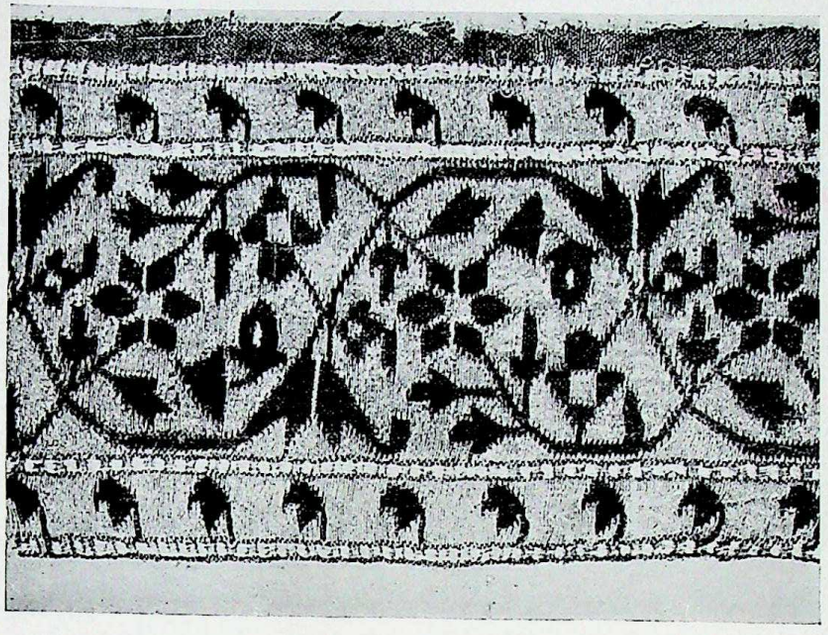
A *kantha* from Bengal embroidered in red, black, green and yellow. In the borders are *kalkas*, separated from the row of horses by a creeper design. The decorative treatment of the foliage is worth noting.

(*By Courtesy of* 'Marg')



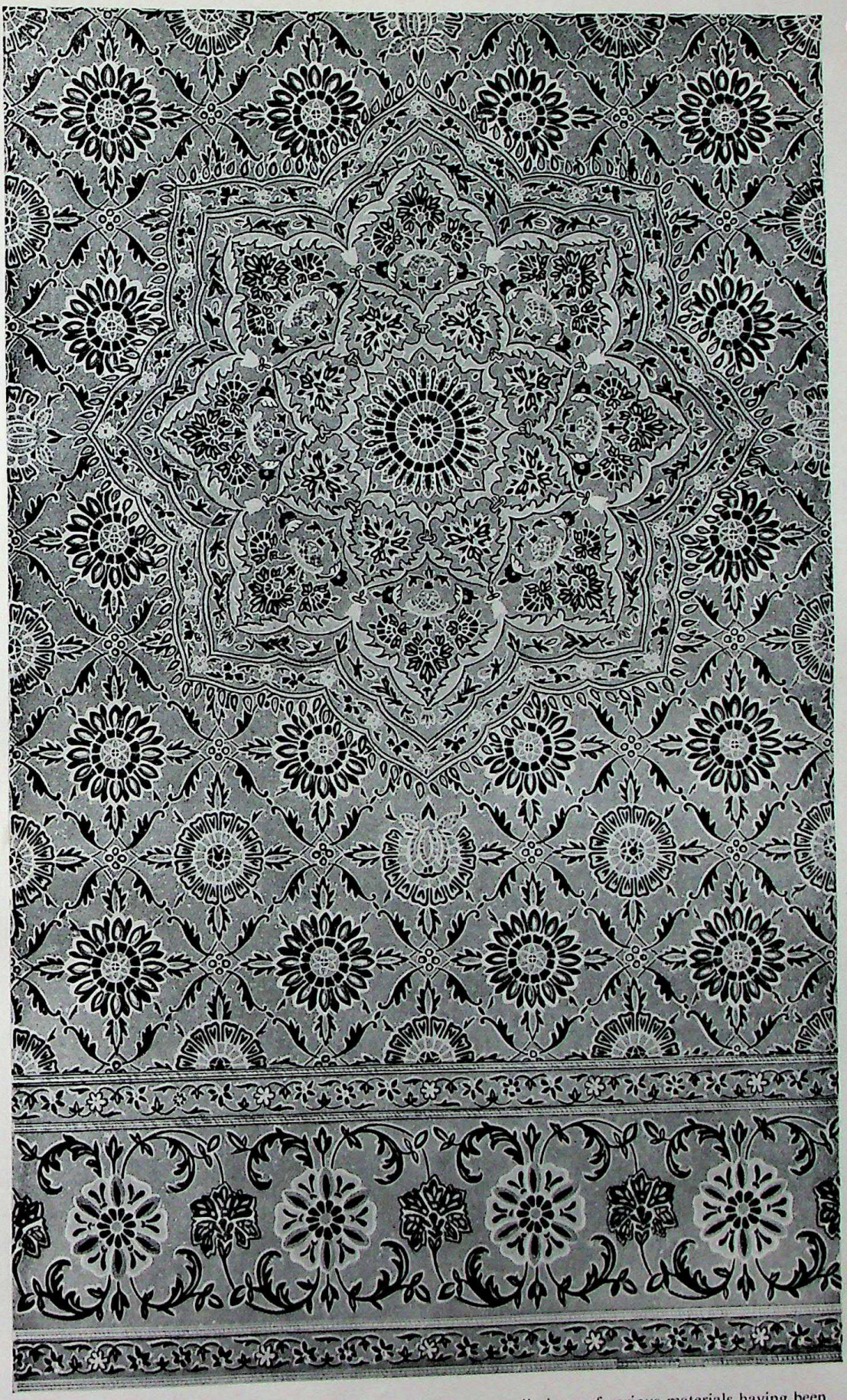
Decorative motif from Paithan embroidery.

(*Photo :* E. S. Mahalingam)



Paithan embroidery border.

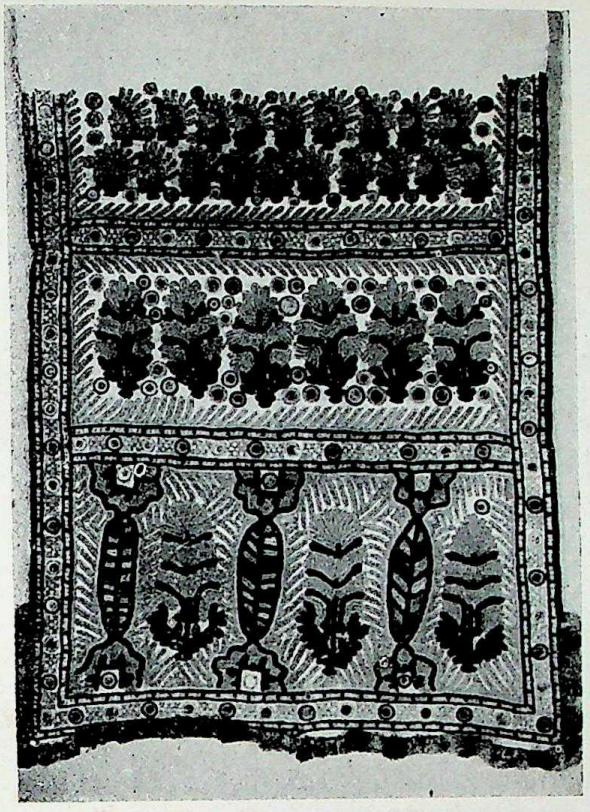
(*By Courtesy of The Calico Museum of Textiles, Ahmadabad*).



Multicoloured appliqué-embroidery on crimson silk cloth — small pieces of various materials having been cut out and sewn down on the cloth. The beauty of design and perfect balance of colours are excellent.

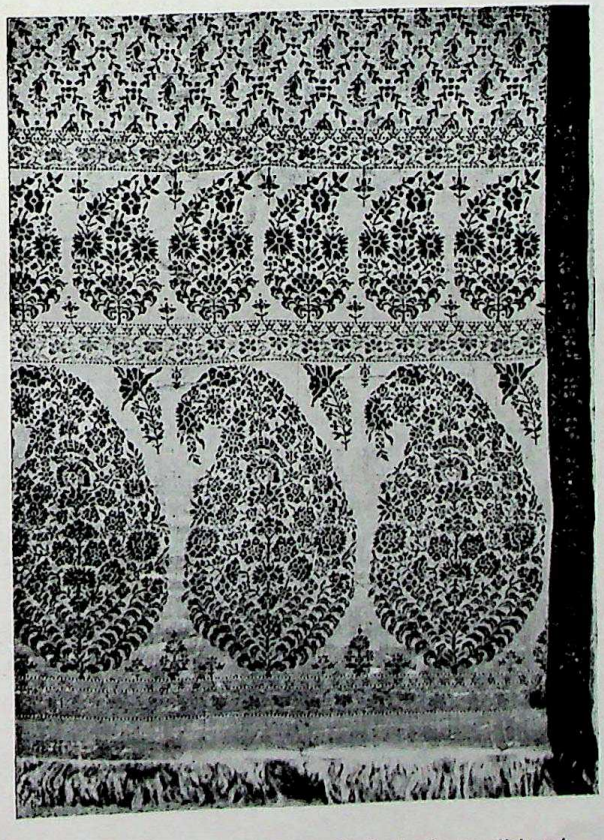
(From *The Industrial Arts of the Nineteenth Century*, by M. Digby Wyatt)

An old kashmiri shawl, C. 1794 A.D.
(By Courtesy of State Historical Museum, U.S.S.R.)



A shawl from Kutch with mirror embroidery.
(*By Courtesy of The Calico Museum of Textiles, Ahmadabad*)

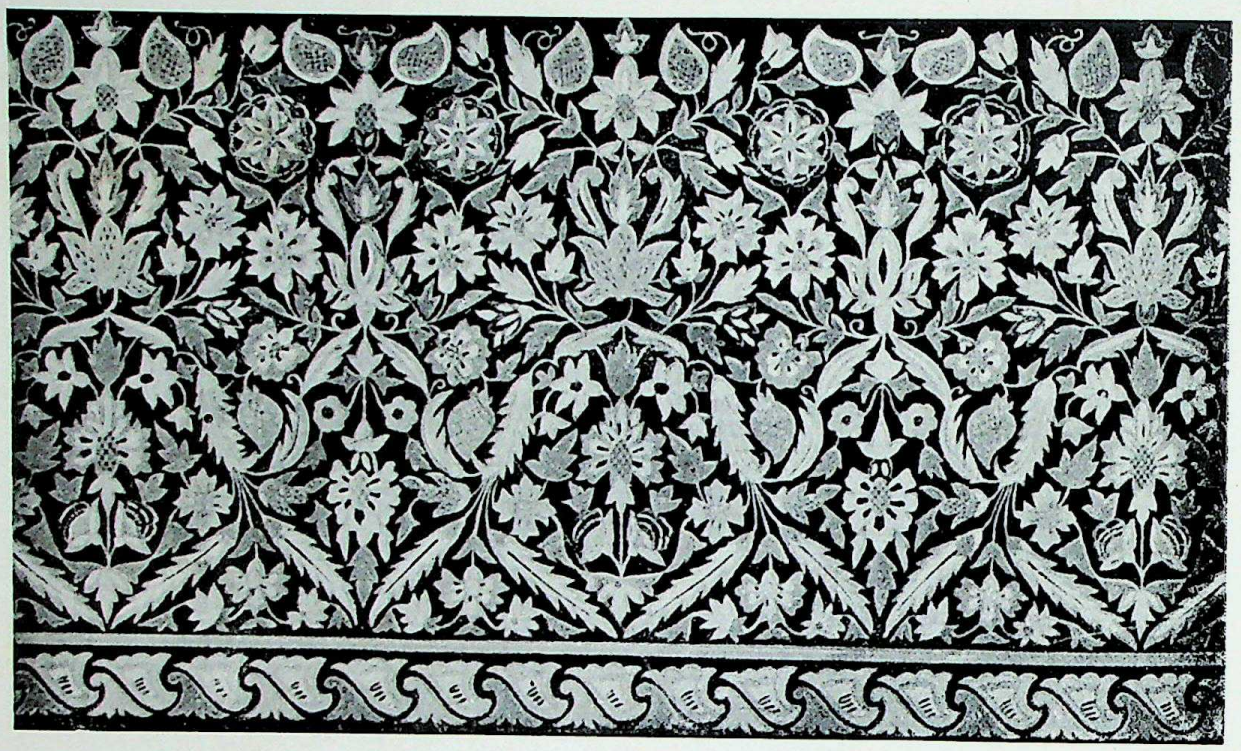
A peasant girl from Kutch in her traditional embroidered and mirror-studded dress.
(*Photo :* Asad K. Syed)



Embroidered shawl from Kashmir in traditional Kalka design.

A fan with slim brass handle and embroidered with jari metal foil.

(*By Courtesy of the Calico Museum of Textiles, Ahmadabad*)



Beautiful embroidery in bright silks on black cloth.
(From *The Industrial Art of the Nineteenth Century*, by M. Digby Wyatt)

An old embroiderer of Kashmir.
(*Photo* : Damodar Hansraj)

left hand. For final finishing, brush work may be resorted to, and wax may also be used as a resist. However, Sir George Watt has pointed out : "The value of a resist is appreciated all over India by the calico-printers, but more with a view to giving background or field colours to certain large spaces, than as a direct method of ornamentation. With many of the high class calicoes of South India, however, block-printing might almost be said to play a subordinate part and brush colouring, with wax as resist, to become the chief method." This is dealt with later in this chapter.

The designs are generally produced in a wide variety of colours, even when the ground colour is ivory-white. The cloth is hardly ever pure white due to incomplete bleaching. The colours most popular are yellow, green, madder red, indigo blue, and black. The design motifs also vary widely, the most popular being the *kalka* or Tree of Life, and *butis,* being floral sprays arranged diagonally.. Equally popular are diapers, peacocks, several other species of birds, and geometrical designs, as well as figures. No wonder the *kalamkari* saris, often also called Multan saris, are always the prized possessions of South Indian women, something they can be justly proud of. Often mythological subjects and whole scenes from the Epics are depicted with a mastery of skill that is really surprising. The more elaborate designs are generally produced by the wax-resist and hand-painting methods which have been described in greater detail later.

In Bengal, the red dye obtained from *al* is used extensively for the printing of cloth with wooden blocks. The Process has been recorded thus in *The Journal of Indian Art* (Vol. VII, 1879) :

"A paste is prepared of about 1 seer of resin, ¼ seer of alum, ⅛ seer of *lodh* and turmeric, well powdered and mixed with 4 seers of water. The paste is well rubbed with the hands, and then it is strained through a thin cloth. The ink thus obtained is used for stamping. After the cloth has been stamped, it is washed and dried. The cloth is then soaked in *al* water prepared as described above and boiled. (Pieces of the *al* wood are powdered and boiled for three to four hours in water. A little *dhai* flower, *Woodfordia floribunda,* is also put in. — R.J.M.). The portions of the cloth covered with the stamps absorb the *al* colour, while the portions not so covered do not take the colour. This gives a beautiful red colouring to the cloth." (*Lodh* is yellow dye from *Symplocos sumuntia.)*

The above report continues with an account of the method of stamping silk fabrics in the past in certain districts of Bengal :

"*Dhaiful* (*Woodfordia floribunda*) which is a red flower, is mixed with alum, *sofada,* haridra, gum arabic, and sugar of lead, and then water being added to them, a cream colour is produced. Then additional water mixed with gum is put in wooden boxes of about 3 feet in length and 1½ feet in breadth. Over these boxes, filled with gum water, wooden frames, with oilcloth at the bottom, are placed, and over the oilcloth a blanket. On this blanket, the coloured liquid produced from the articles noted above is applied and brushed. Ultimately, the wood-cut patterns of various kinds tinged with this colour are pressed on the silk cloth spread on a table. The cloths thus dyed are then washed with water, and afterwards they are boiled in hot water with *manjista* (*Rubia cordifolia*), and the result is a beautiful cream or almond-coloured (*badami*) stamped cloth." (The *haridra* mentioned here is turmeric, also known as *haldi* or *halad*).

Calico printing is universally practised in the country, and in many styles. Shawls (*fard*) and bed-covers are chiefly produced by the *chipigars* (*chapgars*) of Lucknow and other places. Bed-covers are also turned out by the calico-printers of Kanauj and Farrukhabad ; their designs are bold, chiefly the Tree of Life. The printed saris of Amritsar can, in a way, almost rival in colour and richness of effect the best of brocaded or embroidered fabrics.

There are also first-class calico-printers in Dharwar, Khandesh, Baroda, Nasik, Kaira, Kotah, Ratlam, Gwalior and Indore ; but the centre of the craft is Jaipur, at least as far as technique and artistic excellence are concerned. Here the cloth is dyed on both sides, and the designs printed in such a way as to appear almost as brightly on the under as on the upper surface. Udaipur is best known for its printed handkerchiefs and the South Indian printers for their use of the wax-resist, somewhat in the style of the Javanese batik.

Dr. Forbes Watson classifies the calicoes of India into bleached or unbleached calicoes, made everywhere in the country ; and those woven with coloured thread : striped in brilliant shades, checks and tartans ; and printed calicoes or chintzes, printed either on a white or coloured ground. Lastly, there are the world-famous *palampores* of Masulipatam and other places, used as curtains, bed-sheets, and canopies, which "in point of art decoration are simply incomparable."

However, "The term *palampore,*" E. B. Havell points out, "originally derived from the Hindustani 'palangposh' (a bed-cover) is now generally applied indiscriminately to all varieties of Indian printed or hand-painted cottons, including canopies, prayer-cloths or mats, handkerchiefs, and cloths for male and female wear."

The printed calicoes or *kalamkari* fabrics of Masulipatam are rightly one of the most popular of the art-fabrics of India. In early times, the designs were entirely painted on with brushes or *kalams,* but later on northern Indian influence led to the use of wooden blocks. Today, the best quality *kalamkari* is a product of the careful blending of block-printing and hand-painting, a process both complicated and laborious and often taking three or four weeks to complete.

So varied are the styles of calico-printing, so different are the designs and their treatment and colour schemes in the different parts of the country that it is advisable to summarise the styles, and what follows is based on the classification adopted by Sir George Watt for the official catalogue of the Delhi Exhibition of

1902-03. It must be remembered that the following applies only to traditional styles.

Bihar : Calico-printing seems to be common only round about Hajipur, a short distance from Patna. The designs are simple, mostly consisting of circles, cones and stripes, printed all over a ground of yellow or dull pink.

Uttar Pradesh : Many styles are observable in the different districts, the cloth used being chiefly cotton of a good quality. The designs are as a rule small, complex, and in many colours, with reds, blues and greens predominating, the ground being mostly left white. The *palangposhes* or bed-covers are generally printed in a bold design but the *fard* or shawls display a minute flower pattern with a border made up of two or three parallel scroll lines, especially at Lucknow.

As mentioned before, the Farrukhabad calico-printers are fond of the Tree of Life pattern ; there is an abundance of green leaves, with broad borders and festoons of flowers painted round cones, or conventionalised balconies or house facades. The result is not always very happy and tends to be heavy in effect.

At Bulandshahr, and a few other places, the ground of the cloth is dyed yellow, pale green, pale blue, flesh tint, or may be left white in rare cases ; the design is complex, minute, and in two colours that harmonise well. For example, the pattern may be in pale green and chocolate brown on a yellow ground ; or in pink and black on flesh colour ; the ground may be greyish for a design in orange and black ; or if white, the pattern may be in blue and black. As will be noticed, the colour combinations are good and artistically satisfying, and there is no feeling of gaudy brilliance.

A kind of the Tree of Life pattern is also popular in other parts of Uttar Pradesh, depicting large cones, sprigs of flowers, vases, etc., mostly in blue and dark Indian red, with the outlines of the designs in dark brown or black, all on a dull lemon yellow background. The borders are usually heavy and wide, consisting of flowers encircled by broad coloured bands or medallions, often with the interspaces further printed with Arabic inscriptions in black or white letters. Speaking of this, Sir George Watt remarks : "A striking feature of this work is the circumstance that the large surfaces of the design are worked up with the brush over the top of the printed details. In this way shadows within the flowers or the ribs of the leaves show through the main brush colour. In fact the use of the brush in the production of this class of goods raises the craft to a higher platform than that of the ordinary calico-printer and one which in other parts of India is still further developed." He extols this "boldness and freedom of Jafarganj work" in contrast to the severity and uniformity of the Lucknow, Kanauj and Jahangirabad (Bulandshahr) work. According to him the calico-printing done at Agra borrows more from Rajasthan, but the fabrics used are generally coarse, dyed with *al* and the designs printed in black or black and yellow.

United Punjab of Pre-partition Days : The most important centres are certain areas of Montgomery, Lahore, Amritsar, and the old princely state of Kapurthala. In the Punjab, calico-painting (dealt with later) is used together with printing, although no resist is used. For example, in the Montgomery district, the design is first stamped all over and then further ornamented with bands and other shapes in colour by means of the brush.

A similar but distinctive and graceful style is to be noted in the work of Kapurthala. Only the best quality cotton fabrics were once used and were first of all dyed a fine old ivory colour or a pleasing shade of salmon. The printing was then done in terracotta red. This is a close tracery of leaves, flowers and stems, doubly outlined ; and with a border in a darker colour and with bolder designs, "with very often a balustrade-like division by means of inset pillars in Sikh style." Sir George Watt contends that there is "in the Sultanpur (Kapurthala) work a soft harmony and a warm feeling that is most pleasing in the wall drapings of this part of the Panjab."

Lahore is today a part of Pakistan. Here used to be produced quilts (*abras*) and wall cloths — both on coarse material, in shades of Indian red and faded blues and greens. The wall drapes known to us are generally with borders with figures running along the top. The body of the work is panelled with a Tree of Life motif in each panel, as well as birds and other animals. This may be brush work as apart from block printing, especially the background of the panels. The borders may also be made up of zig-zag lines in black and white, red and yellow, the colours alternating to produce a satisfactory effect.

As far as Amritsar is concerned, the great religious centre of the Sikhs, the work produced on good quality muslins appear very much in colour and treatment like the rich brocaded and embroidered fabrics of the place.

About forty-five miles from Amritsar is Gurdaspur, the calico-printing of the place being rather similar to that of Lahore. But there is an exception. The field work very often consists of a number of squares, each containing a large flower in a conventionalised form, "but in so complex and dazzling a fashion as to become perfectly bewildering."

Kashmir : Sir George Watt did not think much of the calico-printers of Jammu and Kashmir and considered their work to be inferior to that of other places. The goods produced are mostly wall drapings, spreads for the floor, dress materials, etc.; a yellow ground colour with the design in red and green used to prevail. The borders may also be made up of panels covered with geometrical designs and wavy lines or stiffly arranged cones.

Rajasthan : Much calico-printing was and is done in the several old princely states that today form Rajasthan.

The ground colour of the work done at Ajmer is generally left white or dyed a warm cream or pale

pink. The floral designs used are delicate but are outlined with a bold black line and further elaborated with two or three shades of red ranging from pink to a deep red. On large articles such as bed-covers, shawls, etc., the fields are ornamented with large floral cone-patterns, with the borders left white but decorated with small floral scrolls in alternating light and dark shades. Sometimes the end pieces of *rumals* and saris, are decorated with pillars and flowers printed within cusped arches. On the whole the Ajmer calicoes are richly colourful and uncommonly beautiful.

As stated before, the old state of Jaipur, and especially the town of Sanganer, may be considered the very home of the Indian calico-printing art, so far as the technique and art conceptions are concerned. The cotton fabric employed is of a fine quality ; the ground colour is generally white, yellow, or blue ; and the designs are made up of flame-cones of realistic and dainty floral sprays. The cones are also made up of flowers or fruits shown as if in vases or on plates. The motifs, about two to three inches in size, are repeated all over the ground, in diagonal lines. Borders are usually absent. The most important characteristic however is that the cotton is dyed on both sides and the designs printed in such a manner that they appear equally distinct on both surfaces of the fabric.

The flowers most commonly represented in the designs are the lily, iris, polyanthus, and the rose, as well as the mango, brinjal, etc. The actual technique is to print the designs all over in every one of the colours required. Then these block patterns are covered with a wax or other resist, and the background dyed by hand by means of a mop of cloth instead of a brush. The background colours most popular are lemon yellow, pale blue, light green, and greenish black. Blackish shawls or *chaddars* are also made with the ornamentation restricted to the narrow borders and the two end-pieces of red and yellow with floral designs in the form of flowering shrubs.

Sir George Watt writes : "The nature, feeling and colour reciprocity as also the technique in printing, are all perfect, while the absence of machine regularity gives a charm that places these goods above and beyond anything as yet accomplished in Europe. It has been observed that it is the quaintness and harmony in the Indian textiles that fascinates, but the skilful treatment of the Sanganer calico-printers is quite as wonderful as the goods are beautiful . . . "

The traditional Jodhpur work is mostly on coarse cloth with the ground colour either dark Indian red, dull blues, or dark greens. The designs are usually in parallel bands about an inch in breadth and arranged lengthwise. As in Jaipur, the fabric is often made into strips to be sewn together to form the article of clothing desired by the purchaser. Sometimes the patterns are geometrical and occasionally one sees diagonal bands and florals.

If the background colour is a dark red or brown, the design is printed in a bright red ; when blue, it may be in brilliant blues or purples — an effect that is at the same time both jarring and yet rather pleasing especially from a short distance. A remarkable feature is the complete absence of white from these calicoes.

In Udaipur and some other places round about, an unusual style is observed on the *rumals* used by men for tying round the waist or used as *pagris* or head-cloths. The cloth is white or pale pink with designs of flower bunches, cones, etc., printed in two shades of dark red, the lighter shade fringing on the darker. Sometimes, designs of green leaves and yellow flowers are also printed.

In Kotah, many types common to Rajasthan are produced ; but a speciality deserves mention. The designs are first printed with a resist-paste and the fabric then dyed in the colour required for the ground. When washed and the resist removed, the pattern appears in white on a dark background. However, the former may be coloured by further printing or painting.

Western India : The chief centres are Ahmadabad Bombay, Broach, Baroda, Gujarat, Patan, Surat ; Dharwar, Nasik and Khandesh among the Marathi speaking regions ; Kutch, Bhavnagar, and Jamnagar in Kathiawar. Sind, which once formed part of the Bombay State, is another important centre. The resist technique is freely used, which may be lime and gum in Ahmadabad, gum and fuller's earth in Sind, beeswax, castor or other oils in Surat.

An examination of the Jain manuscripts of the 15th century will give a hint of the variety of designs and richness of colouring of the printed cottons of Gujarat and Kathiawar. In those early days, Gujarat was the centre of the cotton printing industry and through its port of Broach on the river Narbadda, exported many a fine specimen to the far corners of the world as mentioned by Duarte Barbosa. Even today, among the women of Kathiawar, the cotton printed sari known as the *kausamba* holds pride of place in a bride's wardrobe, together with the *patola* and the *bandhani*. The designs of these bridal saris consist of parrots and dolls, in white, yellow and green. But during periods of mourning, printed saris in black relieved in red and white or in dark red with white relief and with flowered *pallavs* are used and these constitute some of the most beautiful of the printed cotton textiles of Gujarat.

Both in Gujarat and Kathiawar the *wa* or resist printing is used with block stamping, and brush work may also be resorted to, especially in the making of beautifully printed and painted *pishvis* or temple curtains. Unfortunately, these days artificial aniline dyes have replaced the old indigenous vegetable products and therefore it is not surprising that the dyed and printed textiles of today lack the soft tones and dignified effects of the past.

The use of wooden blocks for the actual printing has been current in Gujarat since the 18th century. Nowadays, after printing with the resist, the fabric is dyed for the ground colour. This may be done either by brushing the dye on to the cloth uniformly, or diffe-

rently coloured panels formed by the use of a flannel mop. Thus the pattern shows in white on a coloured ground. In Sind, faded and pale colours are preferred, mostly lemon yellow, orange, red and green, but all in dull shades, these being more representative of the old craft than bright tones. In Baroda, the colours popular are a dark green and blue-black, the designs being minute, but with the borders and end-pieces of the saris strikingly distinct in colour. In Gujarat and Kathiawar, flowers, birds, animals, and human figures are common motifs of the designs, but are never used in profusion. They include horses and elephants, parrots, peacocks, and geese, and the *putli* (doll) the latter being a popular motif of all Gujarat dyed fabrics.

Among the more specialised forms may be mentioned the striped *lahiria* cloth of Ahmadabad, in red, blue or green, mostly in two-colour combinations. In Kutch, really beautiful black saris are produced with a floral motif, but the *pallav* or end-piece is more variegated with parrots and elephants, and the inevitable *putli.*

No wonder the printed cottons of Gujarat and Kathiawar were so famous and even today retain a certain popularity. As Pupul Jayakar says, "the effect of the inverted treatment of colour of the Gujerat and Kathiawar printed cloths with their dark backgrounds, green or chocolate, deep red or black with the design in relief in red or white, is like carving in red sandstone or wood, bearing the impress of Gujerat architecture and her famous bandhana fabrics."

The South : In the south, the colours are brighter and the designs bolder and more freely conceived than anywhere else in India, perhaps because of a liberating Dravidian influence.

The dominant motifs of Masulipatam calicoes are the flame or kalka, floral sprays arranged diagonally, diapers, birds, peacocks, etc., usually with a continuous floral border. The kalka motif is especially popular at Tanjore.

In the words of G. P. Baker, "As examples of decorative art, some of these printed calicoes are unsurpassed in design ; they reveal an art which had reached such a pitch of perfection that it pre-supposes long centuries of apprenticeship and practice. They may be classed with the finest of oriental carpets. As masterpieces of manufacture they fascinate the expert calico printer, and teach the handicraftsman the lesson and value of patience in reproduction which, as has been said by the late Sir George Birdwood, is 'the magic by which the inspiration of Art can alone be wrought into reality and life.' "

CALICO PAINTING AND THE USE OF RESIST

The French jewel merchant and traveller, Bernier visited Aurangzeb, the reigning Mughal Emperor, in 1663. Enchanted by the splendour of the Royal capital he wrote ecstasically of the embroidered silks, golden curtains and canopies of the Diwan-i-Am or Hall of Public Audience at Delhi : "It was red from without, and lined within with those *chittes,* or cloth painted by a pencil of Masulipatam, purposely wrought and contrived with such vivid colours and flowers, so naturally drawn, of a hundred several fashions and shapes, that one would have said it was a hanging *parterre.**"

The pen-like *kalmdar* or *kalam* is the tool still used by the dyers of South India who produce painted calicoes, and this is nothing more than a bunch of soft steel wires attached to a slim piece of wood to act as the handle, the wires thus forming a sort of hard brush. The resist, which is generally bees-wax, is melted in a small dish and this is applied to the cloth with the *kalmdar.* The cloth, which is first mordanted, is stretched across a table that has been padded with some soft material, and the dyer paints in the design with the hot wax. The mordanted fabric, which in some cases may be dyed a pale pink previously, absorbs the hot wax avidly. The dyer works with extreme skill and great speed, drawing his design with the greatest ease, dipping the steel brush in the liquid wax now and then to re-charge it. When completed, the cloth is dipped in the dye solution, say red. When the wax is finally removed with hot water, the cloth will show a pattern in two shades of red, if the cloth was originally dyed pink. The procedure may be repeated again and again in the case of complex designs in many colours. This is the usual mode of using a resist.

Where large areas are concerned, they may be brushed over with liquid dye, or the whole fabric dipped in it, after all the parts of the design that are not intended to be coloured in that dye have been blocked out with molten wax. When the large areas are dyed by brushing the colour on the fabric, it will be found that the right side of the cloth is more brightly coloured than the reverse, unless it has been subsequently re-waxed and the dye again brushed on the other side. However, a perfect uniformity of colour on both sides of the calico indicates that it has most probably been vat dyed. After dyeing, the fabric is dipped in alum solution to fix the colours and the wax removed with boiling water.

Colonel George Bidie who had made a deep study of the subject of calico printing and painting with the use of wax-resist has written :

"In some cases the figures are printed on the cloth with wooden blocks, but all the finer *palampores* are prepared by stencilling and hand-painting. The stencil plates are made of stout paper. On these the outlines of the pattern are first traced in ink and then perforated with minute holes in the most accurate manner with a fine needle. The stencil is then complete, and when in use, is placed on the cloth and covered with charcoal in very fine powder, which is rubbed so as to make it pass through the minute perforations and leave a tracing. The rest of the work is done entirely by hand, and thus considerable scope is given for the exhibition of individual taste in the selection and

* Flower-bed

grouping of colours. The Kalahasti *palampores* contain mythological scenes, and are full of descriptions of these in vernacular. Some of the more expensive Masulipatam-made *palampores* are virtually hand-painted pictures on cloth."

Regarding the hand-painted cloths made for temple use at Kalahasti in the North Arcot district, E. B. Havell wrote when he was the Superintendent of the Madras School of Art : "The quaint illustrations of scenes from Hindu epics, the *Ramayana* and the *Mahabharata,* are exact reproductions of the style of Hindu temple sculptures with the same richness of architectural frame-work and elaboration of jewellery. But apart from their interest, the wonderful effect of the arrangement of colour gives them an artistic value of a high order."

We are further told that the art conceptions of the Masulipatam calicoes differ according to the use they are to be put to — as canopies over idols by the Hindus or prayer mats by the Mohammedans. In the former, the designs are mythological or may portray scenes from the immortal classics. Those for Mohammedan use generally depict the *mihrab,* the niche or arched recess in the western wall of an Indian mosque and towards which the worshippers turn for prayer. The panel within may show the usual Tree of Life motif with birds perching on the branches and other animals lying below the sheltering shade of the tree. The earth is represented figuratively as a triangular mound and rivers by straight lines. *Palampores* are also made for domestic purposes, as pillow slips, bed covers, table cloths, etc., and these are generally decorated with rural and sporting scenes, almost invariably block printed and sometimes subsequently hand-painted.

The expensive and really superior *palampores* can be so perfect "that at the distance of a few feet they can with difficulty be distinguished from the very finest Kashmir embroidered shawls." The loveliest calico-printing is done on long strips of cloth meant to be used as *chaddars* or the Indian version of the shawl. "The ends of the cloth have been opened out, twisted and tied up so as to form coloured fringes that in every detail simulate those of woollen shawls and are quite unlike the fringes shown on the cotton shawls of any other part of India," says Sir George Watt. "In the larger squares or *palangposhes* and *fards* or the canopies and floor cloths, the borders often consist of festoons of flowers, in the form of wreaths tied with ribbons and pendant tassels, that isolate certain portions or panels which are filled in with bunches of realistic flowers."

Coimbatore once used to be famous for its hand-painted covers, curtains and handkerchiefs, with a white or mottled grey background. The dominant colour scheme was light Indian red with a slight intermixture of dark red and green. The designs were bold, freely executed and consisted of birds and animals cleverly mixed with scrolls. Large flowers abounded, flowers artistically treated with the petals outlined in pale coloured stripes and shaded in one or two tones, mostly of red. The borders were wide and richly decorated with floral wreaths, seemingly looped up and tied with ribbons in lover's knots and with flowered tassels depending from them.

Dyed handkerchiefs used to be made over a large part of the south, mainly for export, but this industry is now almost dead. The designs were clearly seen on both sides of the material, and were in blue with a white outline, all over a dark red ground. The desired areas of the design were covered with wax and the cloth dyed a dark red. The wax was next removed and the already dyed areas as well as those outlines desired in white were again covered with wax. The next dye was the blue, this colouring the design, leaving a white edge and the ground a deep red. Like the Javanese batik, all large coloured surfaces showed cob-web-like streaks of light colour formed by the cracking of the wax coat. These streaks are a sure indication of the use of the wax-resist process. In the true batik work, the cloth after waxing is purposely crushed in the hands to crack the wax coat and produce the filmly markings.

The Tanjore dyers used to follow a special technique that is no longer practised. The fabric, mostly saris, were specially woven with a special design worked out with gold threads let into the weft. But unlike the *jamdani,* the gold threads formed the background of the cloth and not the pattern itself. The design was next waxed by the *kalmdar* and the sari dyed a rich red and then certain areas printed in darker shades to produce an effect of shading. When the wax was removed, the design was left in white on a fine soft red, and this was further ornamented with block printing. The process of dyeing also toned down the brightness of the gold, thus providing a soft, rich, yet subtle effect, unequalled by any other printed fabric.

A speciality of printing also existed in Mysore, or Bangalore to be exact. The designs contained human figures, palms, plantains, etc., and the outlines of these forms were treated with wax, and the areas within the wax outlines coloured by hand with the use of a brush. In this case the wax was not used as a resist, but only to prevent the spreading and mingling of the hand-applied dyes.

"The ability to apply drawing and colours free-hand was of revolutionary importance in the history of textile design," says John Irwin. "It not only meant that designs could be individually drawn with a human and sensuous touch, but also that the designer was liberated from the limitations of the repeat-pattern, inevitably imposed by the print block."

Nowadays, for quicker production, wood stamping blocks are used to apply the resist, and even silk-screens are employed for printing with hand rollers.

TINSEL PRINTING

The printing and painting of calicoes brings us to the allied craft of tinsel printing. In brief, the process consists of printing the design on the cloth with a

substance with adhesive properties, and before the latter is dry, dusting with coloured powders, or covering with silver or gold leaf, tin-foil, mercury amalgam, etc. The adhesive substance is mostly glue, gum, or lac, being previously coloured yellow with an aniline dye if gold is to be subsequently applied, or with chalk, if the design is to be finished in silver foil.

To go into details, the cloth is first of all printed with the adhesive by means of wooden blocks and dried in the open shade. When ready for tinseling, it is unrolled bit by bit, the exposed portion wetted with a damp cloth and when sufficiently damp, the silver or gold leaf pressed all over the surface. It is next again allowed to dry. The excess metal, not adhering to the cloth, is removed. Finally, the cloth is rubbed with a burnisher (*duali*) to brighten the metal foil and give a lustre to the cloth.

In some parts of the country, printed and coloured muslins are further embellished by being subsequently stamped with glue or gum and treated with silver and gold leaf as explained above. But perhaps the art of tinsel printing is to be seen at its best at Jaipur. The muslins are first printed with wooden blocks using a resist paste, then dyed in a vat, the resist removed and floral designs on a pale green or pale blue ground printed with colour and tinsel.

Beautiful tinsel cloth also used to be produced at Nasik, the design being printed with blocks but the adhesive used was perhaps *roghun* oil, described under "Indian Wax Cloth" in another chapter. Dark coloured cloth was used which was stamped with the adhesive substance in white or different colours. Thus, green leaves, white, red and golden flowers would be produced on a dark background.

As a perfect example of beautiful tinsel printing, Sir George Watt has described an exhibit at the Delhi Exhibtion of 1902-03. He considered it to be the most illustrative of the designs met with in the various regions of India and called it a splendid example of hand-painting with wax as a resist. He believed it to have been made in the Godavari region. Here is his description of the piece :

"The field colour is a pale buff. The design, a double 'Persian tree of life' completely interlaced but with the boughs open, gracefully branched, and richly clothed in long pale blue and green leaves and bright pink flowers. Resting on the branches or walking under the shade are brilliantly coloured and crested pheasants. But the charm of this wonderful piece of work is the fact that the outlines of every twig, leaf, petal, or feather are cleverly rendered in gold. The border is broad and elegantly worked. It shows the, by no means unusual, festooning of flowers, braced by ribbons and tassels and with bunches of realistic flowers placed above the saggings of the wreaths."

It is unfortunate that due to the ever-increasing use today of high-speed machinery for printing textiles by means of silk screens or revolving metal rollers, Indian hand calico-printing and painting are dying crafts. It is even more unfortunate that today's designers of machine-made fabrics should fail to derive their inspiration from the beautiful Indian patterns of old and their intriguing colour schemes, whether soft or brilliant in their colour harmonies. Instead they are borrowing from Western designs which are not always suited to the temperament and personality of the men and women of India.

TIE-DYEING OR BANDHANI WORK

The *bandhani* or *bandhana,** which is a form of tie-resist dyeing, and the *patola,* are the two greatest masterpieces of the Indian dyer's art. The excellence of Indian dyeing was a byword even in ancient Rome, as there is a reference to it in St. Jerome's fourth century Latin translation of the Bible, in which Job declared wisdom to be even more lasting than the "dyed colours of India."

The *bandhani* or *chunari* is said to be symbolic of girlhood, love and marital happiness, and figures constantly in love lyrics and folk songs. To the Hindu women everywhere it is the most auspicious of bridal garments, for it is a fabric reminiscent of youth and romance and true love.

The art of *bandhani* tie-dyeing is most popular in Gujarat and Kathiawar, in Sind and Rajasthan. While the women of the Gujarat wear such a fabric as a *ghatadi* or wedding-scarf, the Rajasthani and Kathiawari women drape the *bandhani* over their embroidered *ghagaras* or skirts as a *dupatta ;* the women of Sind also use it to decorate their elaborate skirts. And it is often used as a sari.

In order to produce the various dyed designs, the cloth is first folded several times till reduced to a size about 1½ feet by 1 feet and three or four folds in thickness, wetted with water and placed on a block of wood in which have been fixed a number of pins set in the required design. The portions of the fabric thus raised by the ends of the pins are deftly tied round with waxed string that is carried from one raised point to another without cutting. The cloth is next dyed in the colour desired, the tying of the knots acting as a sort of "resist," and the parts thus protected remaining uncoloured. The knots may then be tied for a different part of the design by the use of another pin-block and the fabric dyed again. This is continued till all the desired colours have been obtained and the design complete.

The process as explained above and practised today seems to have changed very little through the years. The method as followed in the last century has thus been described by Sir George Birdwood :

"Another mode of decorating silk or cotton is by knotting (*bandhna*) which gave its name to the old bandana pocket-handkerchiefs. To knot the silk or cotton, the undyed cloth is sent to a draughtsman, or *chitarnar,* who divides the whole surface into one-inch

* From which comes the word "bandana".

squares. Then it goes to the knotter, or *bandnari,* generally a young girl, who picks up a little cloth at each corner of the squares, and ties it into a knot with packthread, the number and position of the knots being fixed by the pattern it is desired the cloth should take. Then after being thus knotted all over, the cloth is sent to the dyer, who dips it into the colour required for the ground of the pattern ; after which the knots are all untied, and shew in little squares (not in circles) of white, the centres of which are generally hand-painted with yellow. This is the simplest *bandhnari* patterns. In the *phal-wadi* or 'flower-garden' many colours are used. First the parts that are to remain white are knotted and the cloth dipped in yellow ; then some of the yellow is knotted, and the cloth is dyed scarlet. For the border some scarlet parts are tied, and the rest dyed purple."

Thus, the patterns or the outlines of the figures are formed of all-over spots, squares or circles or groups of spots. Experts may however dispense with the pin-block guide and do the tying "free-hand" through long practice.

"Should a still more elaborate design be contemplated, the dyeing and tying may be repeated indefinitely," Sir George Watt tells us. "For example, the first points may have been very large and the cloth so folded that when they are opened out they form perfectly circular white spots, squares or star-shaped patches, upon the first ground colour. These may now be dealt with separately and be tied and re-tied until the circles, the squares or the stars become variegated by concentric bands of colour, or a final special spot may be given in the centre of each by uncovering the tips so as to allow these portions of the tied up spaces to receive the desired tint ; in fact such exposed portions may be specially coloured by means of a brush. But since the tying of points can never be absolutely complete, the very centre of each bears the tiniest speck of the final field colour."

If, instead of square, circular, or star-shaped spots all over, zig-zag or transverse bands are desired, this is done by folding the cloth lengthwise into about four folds and then tying it at intervals to form the coloured areas of the desired width. The cloth is then dyed, and when opened out will be found to have a ground of one colour, and zig-zag bands of white. A further elaboration is the ordinary point-tying to produce an infinite number of designs.

In Murshidabad, sometimes the string which is used for tying the knots is itself dyed in the required colour. This colour is thus imprinted on the cloth where the knots are made and so coloured spots or rings are formed.

Those who do the actual tying are mostly young girls who allow the nails of their thumb and forefinger to grow long to help them in their work, the long nails enabling them to take hold of even tiny areas of the cloth with a certain amount of ease.

The best *bandhani* fabrics come from Gujarat and Rajasthan where they are known and classified according to the number of knots in the repeat. But a much cruder form of the tie-and-dye work, mostly on thick calico, also comes from Assam, the Deccan, and many other parts of the country.

There are two traditional varieties of *bandhani* dyeing, the *gharchola* and the *chunari.* The former is the more elaborate of the two as far as the design is concerned. Generally, it has a ground of deep red, yellow, or green. The pattern is known as *phulwadi* when more than two colours are used in the same pattern, and *shikari* when animal motifs predominate in the design. In the best and most expensive *gharcholas,* squares in gold thread are woven in the fabric and the tie-dyed designs made within these squares. The work is very intricate, the finest *gharcholas* being those of Saurashtra. The traditional motifs in all kinds of this art-craft are birds, flowers, elephants, and dancing figures, all suitably conventionalised.

In some *bandhani* fabrics, the border may have a background of a different colour from that of the main part. The dots forming the design may be of one solid colour or formed of fine concentric circles in two or even three different hues. In Gujarat, sometimes the *bandhani* work is restricted to the borders only and to large circular areas in the body of a sari — the circles often being formed of dancing figures.

The *chunari* is a more delicate and lighter textile ; the tie-dyeing is restricted and scattered over the fabric in isolated dots or groups of dots, combined to form simple designs.

In a short note on the tie-and-dye work as practised in the late 1880's at Baran in what used to be the native state of Kotah, C. R. Das, who was the Assistant Superintendent of Revenue of Kotah, states that the *chunaris* were of two kinds, *packa* and *kacha,* of fast and fleeting colours respectively. The former are known according to the patterns produced on them, as for example, *ekdali,* showing small circles and squares ; *tikhunti,* circles and squares in groups of three ; *chaubandi,* circles and squares in groups of four ; and *satbandi,* when in groups of seven ; *jaldar* and *beldar,* with diagonal or flowing patterns ; *shikari,* a design with human figures, horses, tigers, elephants, etc.

In making the *packa chunari,* the cloth, generally thick and coarse longcloth, is washed and soaked for a night in cold water containing a little castor oil and a saline earth called *khara* (impure sodium carbonate?) in equal parts. Next morning the cloth is dried, and the whole process repeated from ten to fifteen times. It is now washed in the flowing waters of a river and left exposed to the air. When dry, the pattern is drawn upon the cloth with *geru* — a red chalk— and sent to the tyers. The parts of the design desired to appear yellow are steeped in a mixture of turmeric (*haldi*) and butter milk (*chhach*) ; and those to be dyed green are treated similarly with a preparation of indigo and turmeric. These parts are now tied and the colours washed off from the remaining areas. The cloth is now dyed for the main background colour. The red

dye used is the *al* mixed with alum in water. The cloth is steeped in this for three days at a stretch, finally removed and dried. The blue colour, produced with the help of indigo, is the work of the *rangrez*.

The *kacha chunaris* are coloured with dyes that are not fast, the designs being more intricate and finely detailed, and generally produced on fabrics of finer texture like muslins, etc. In this case, the red used is produced from the Safflower (*Carthamus tinctorius*). The flowers are ground up and steeped in water till all the dye has been extracted.

We are further told : "Even the dyers of Kotah do the work of tying and dyeing on a small scale, but under a different name, viz., 'Dhanak' and 'Laharia.' The work is not so minute, nor does it require the same amount of skill as the *chunari,* but it is very pretty and nice in its own way, and next to the *chunari,* is much prized by either sex for their head-dresses, not only in Kotah, but in almost the whole of Rajputana (now Rajasthan — R.J.M.). The colours, like those of the superior *chunari* work, are fleeting. When the work imitates flowers, or bunches of flowers, or something similar, in a round or square form, it is termed 'Dhanak,' but when festoons in a winding pattern are traced, it is termed 'Laharia.' The most beautiful and valuable of this kind of work, is what is locally known as 'Chira,' which consists of stripes of variegated colours worked diagonally." (*The Journal of Indian Art,* Vol. II, 1888.)

THE PATOLA

Another type of tie-and-dye technique is that called *ikat,* really an Indonesian term, in which the warp and weft threads are separately tie-dyed before weaving, and this brings us to the fascinating *patolas** of Gujarat ; but more or less similar also are the *telia rumals* of the Deccan, the dyed cotton shawls of Orissa and the mashru of mixed silk and cotton in which the warp only is tie-dyed before weaving, thus producing a characteristic pattern of wavy lines.

There can be no argument about the beauty of the Gujarat *patola* — one of the finest dyed fabrics produced anywhere in the world — and seen at its best in the silk wedding saris of Kathiawar and Gujarat. We read in a 1955 issue of the *Onlooker :* "Patolas are one of the most beautiful products of the Indian handloom and among the most colourful of ancient Indian textiles, the use of which has remained popular among discerning women to this day. The only reason for their restricted use is their high cost."

The technique of *patola* dyeing and weaving probably originated in the fifth century A.D. and evolved into a highly refined industry by the eleventh century, the period when it became the fashion among the well-to-do classes.

The warp (*tana*) and weft (*bana*) threads are separately dyed by the *bandhani* process before they are woven together. The silk warp is first dyed in the lightest colour, and the dyer, keeping in mind the design required to be produced, draws on it lines in pencil at measured distances. These marked areas are then tied with wax thread as explained before and the yarn dyed in the next darker colour. This continues till the darkest colour desired has been obtained. The weft is also given the same treatment and the threads thus dyed woven into the most artistic and charming designs of shrubs, elephants, human figures, birds, and flowers.

A. B. Gupte's description of the process is worth reproducing here :

"It is woven with warps and wefts which have been separately tied and dyed by the *Bandhana* or knot-dyeing process. The dyer takes a small bundle of the warp after it has been dyed in the lightest colour, and draws in pencil across it some lines at measured distances, according to the design to be produced. His wife then ties the silk, along the spaces marked, tightly round with cotton thread, through which the dye will not penetrate. The yarn is then dyed with next darker colour found upon the warp, and the process repeated until the darkest colour is reached. The weft is then treated in the same way, being so tied and dyed that, in the loom, when it crosses the warp, each of its colours may exactly come in contact with the same colour in the warp. The little bundles of warp have next to be arranged in the loom by the weaver, who then takes the little bundles of weft one at a time, using each in is own place through the design."

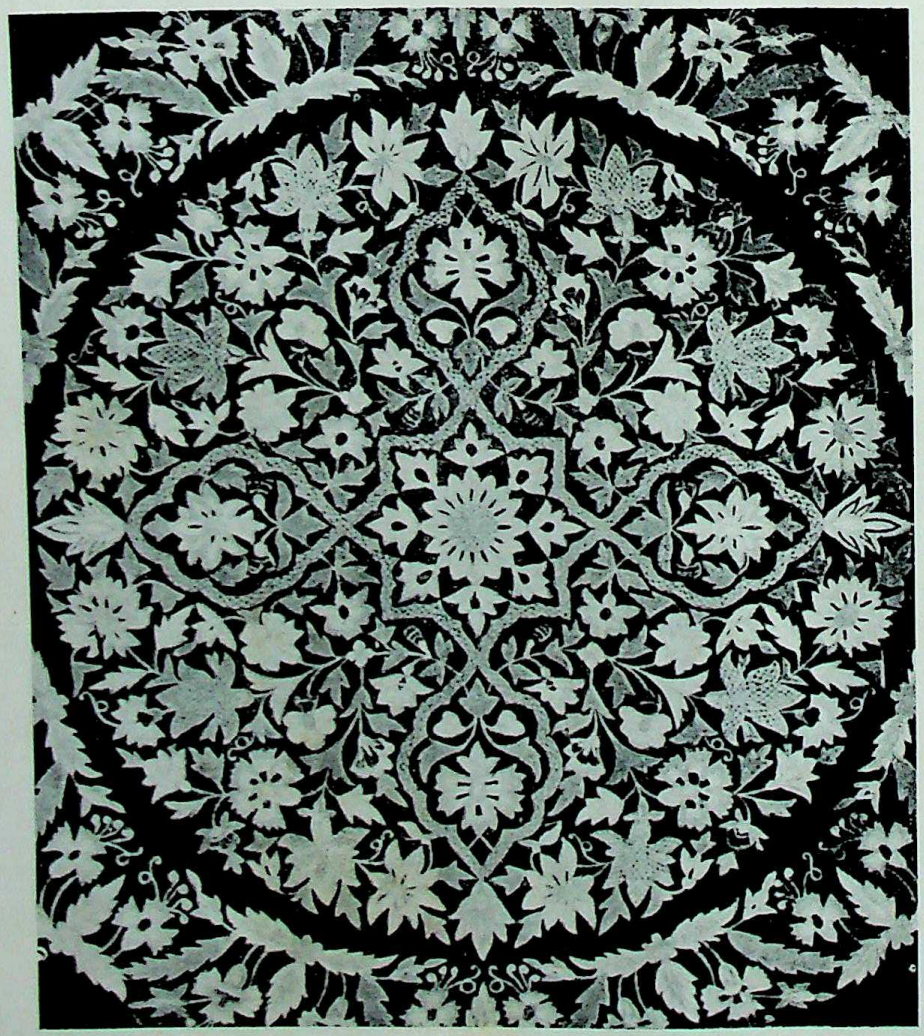
The colour harmony in the best *patolas* is always superb, and the decorative details invariably treated with utmost aesthetic simplicity. The colours are soft yet rich and so skilfully blended that they seem to flow into one another with a subtlety of effect very difficult to describe. "The merging of one shade into another or extension of darker shades in regions of lighter shades recalls to one's mind the brush work on canvas and nature's work on the wings of a butterfly." (A. N. Gulati.)

Today, apart from saris, the *patola* technique is also used for table covers, wall hangings, cloth for blouses and cholis, handkerchiefs, etc.

One of the characteristics of the *patola* is that the design appears the same on both sides of the fabric, the different colours merging gracefully together. The differences to be observed in the work of different places has thus been summarised by Sir George Watt :

"In the Cambay (Khambat — R.J.M.) pattern, a diaper is produced by a white line that forms meshes flattened laterally (i.e. their greatest length vertical). Produced within these are three white flowers borne on dark green stems in a maroon field, but the sprays lie as it were sideways to the length of the sari. The border stripes are not uniform, the end ones being broader and the pattern of these running vertically, whereas the side stripes are narrow and the pattern drawn out lengthwise much as in Penjdeh rugs."

* The correct Gujarati plural form for *patola* is *patolu,* but we shall use the incorrect *patolas* in the text as being more popular.

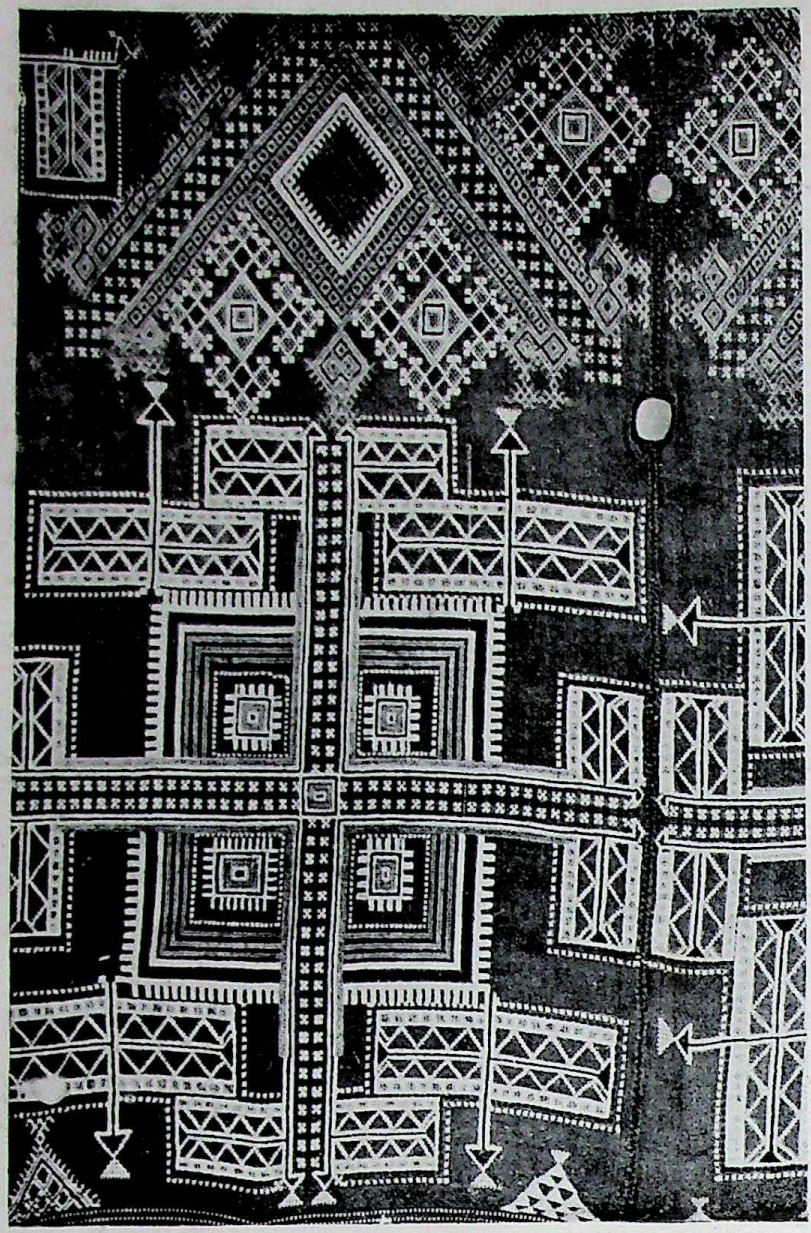


Beautiful embroidery in bright but harmonious coloured silks on black cloth.

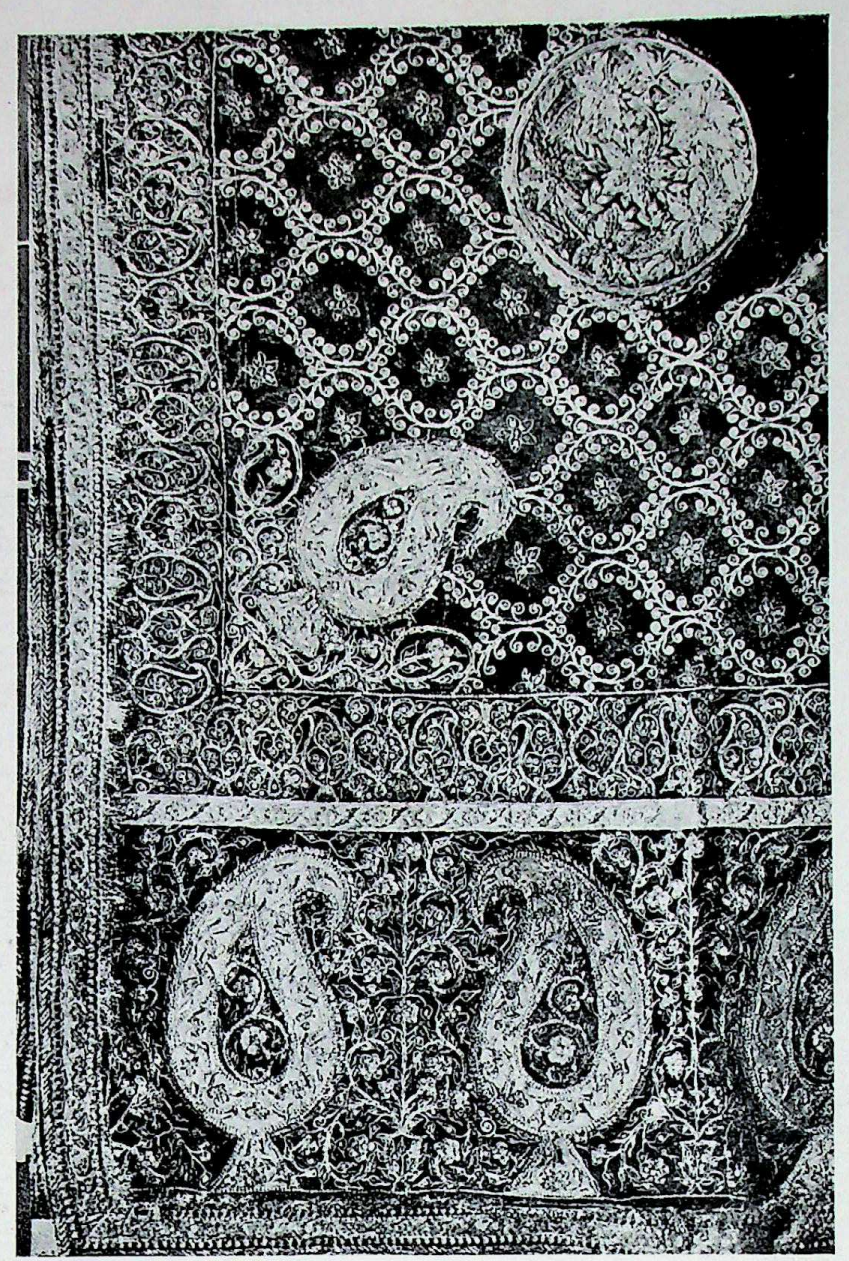
(From *The Industrial Art of the Nineteenth Century*, by M. Digby Wyatt)

Example of embroidery of the Rubaris of Kathiawar.

(From *The Journal of Indian Art and Industry*)

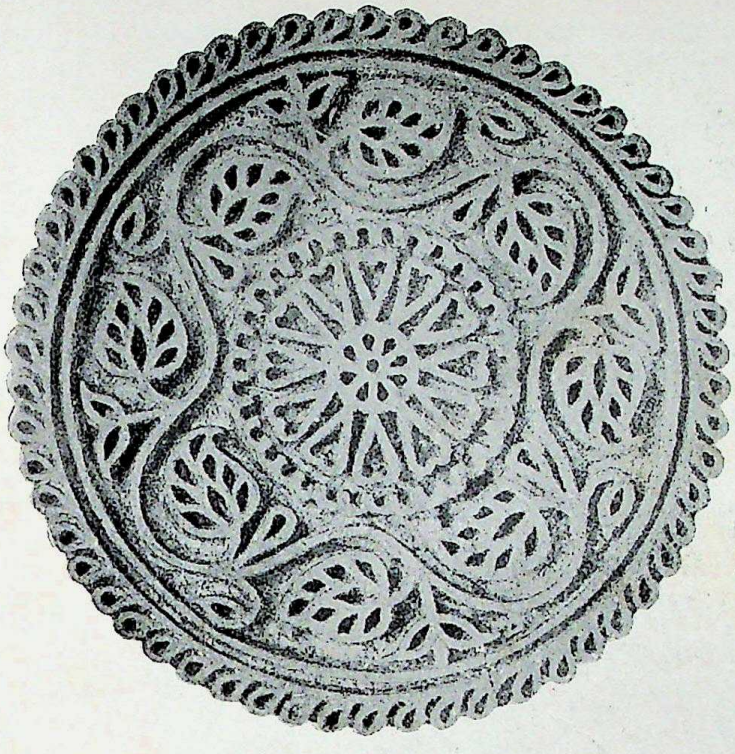


Part of a bed-spread embroidered in cross-stitch. Bikaner, 17th century.

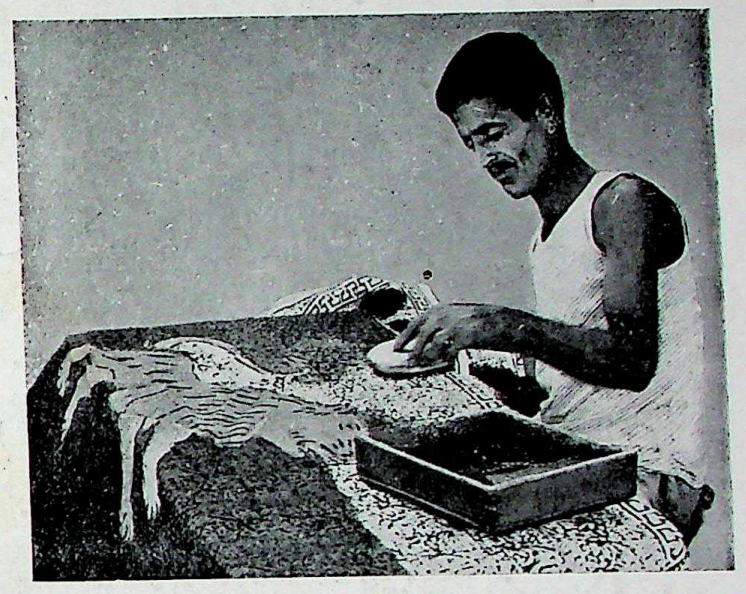


Transparent sari embroidered with gold and silver tinsel in Lucknow style. Patna, 19th Century.

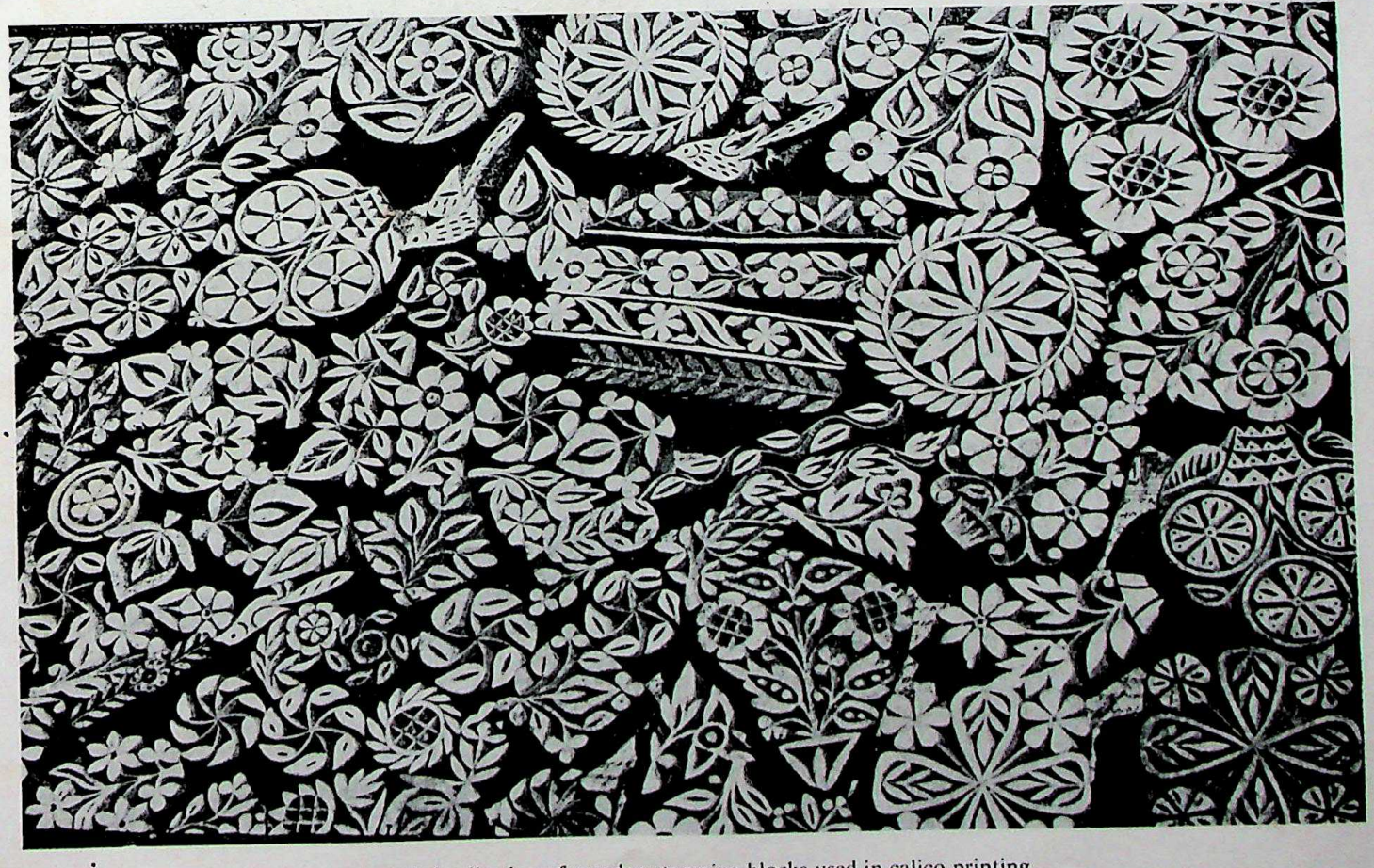
(By Courtesy of Baroda Museum and Picture Gallery)



Close-up of a wooden block used in hand printing of cloth.
(From *The Journal of Indian Art and Industry*)

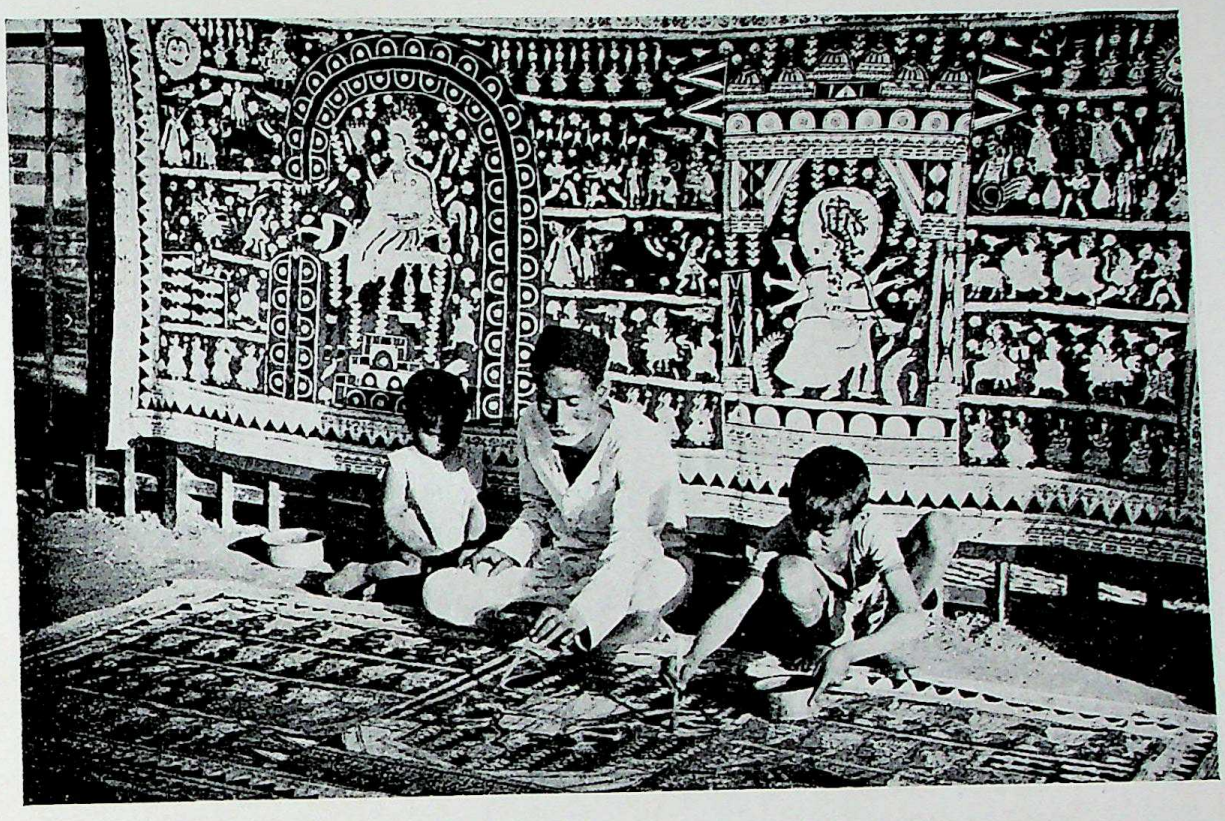


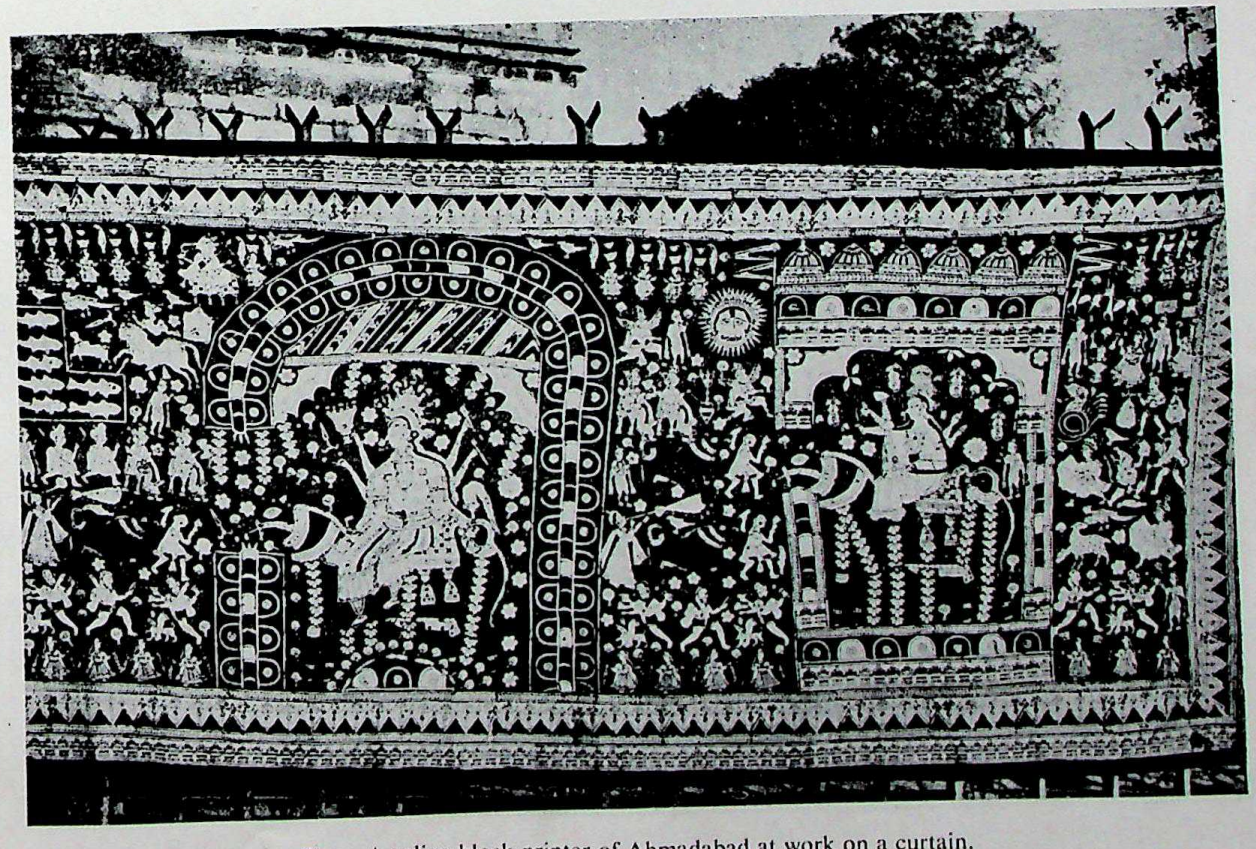
A calico-printer at work, using a wooden stamping block.
(*Photo :* A. S. Vaswani)



A varied collection of wooden stamping blocks used in calico printing.
(*Photo :* A. S. Vaswani)

A superb example of a Masulipatam Kalamkari print.
(*Photo :* R. V. Rao)

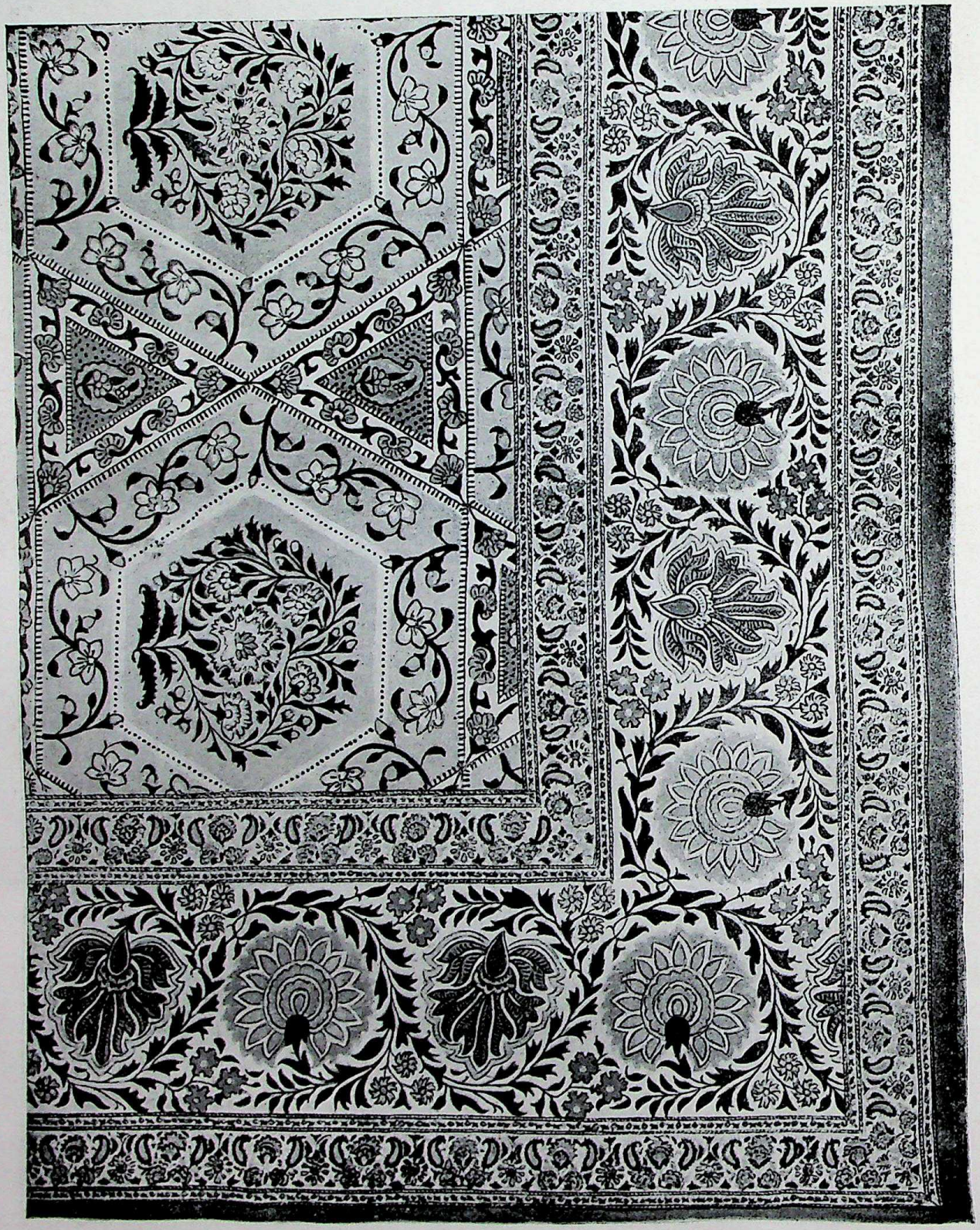




Top : A calico block-printer of Ahmadabad at work on a curtain.

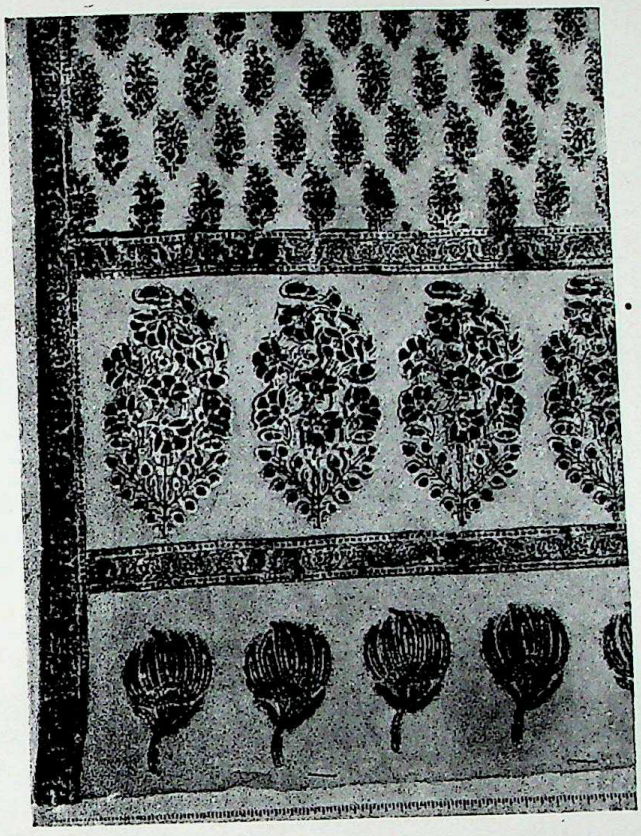
Bottom : A completed hand-printed curtain or temple wall-hanging.

(*Photos :* B. Bhansali)



A superb example of hand-printed cotton cloth from Madras. The floral design is typical and lovely in its bold yet subtle colour scheme.

(From *The Journal of Indian Art and Industry*)

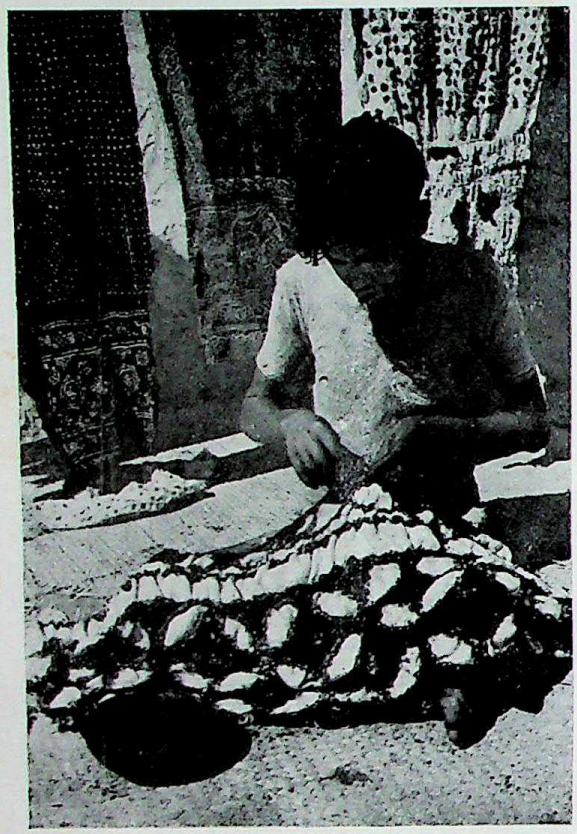


Gold tinsel printing on a hand blocked print, from Gujarat. Floral motif is of Mughal type.

Corner of a counterpane in Kalamkari work — hand blocking and painting.

An old Kalamkari print depicting the battle of Lanka, from the Ramayana. In olden days only vegetable dyes were used.

(By Courtesy of the Calico Museum of Textiles, Ahmadabad)



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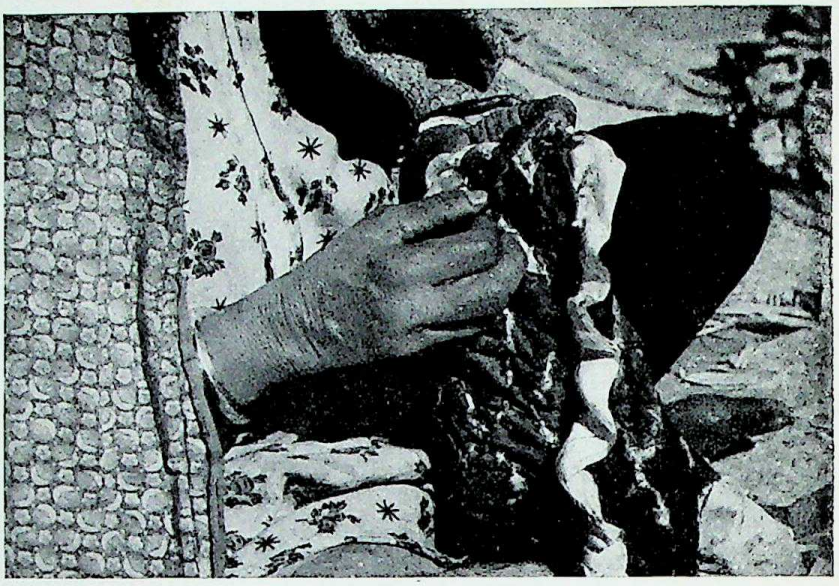

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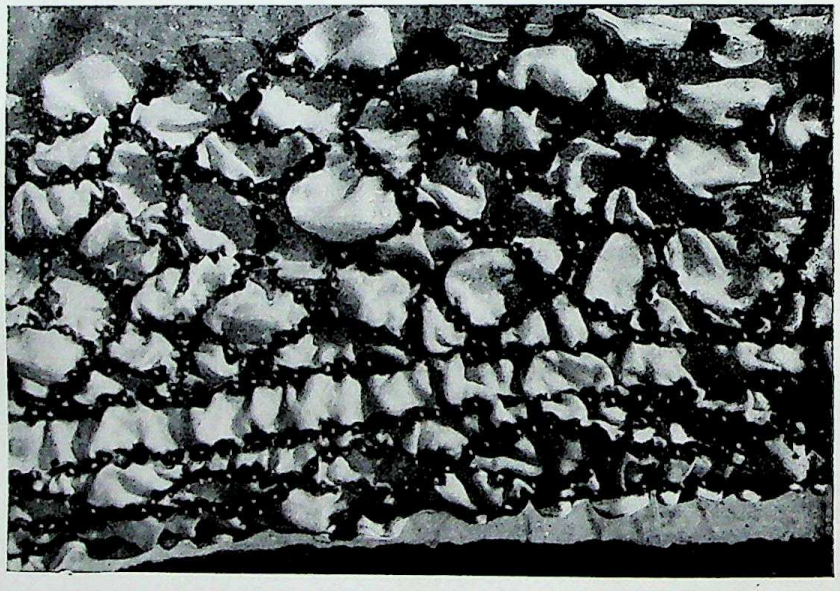

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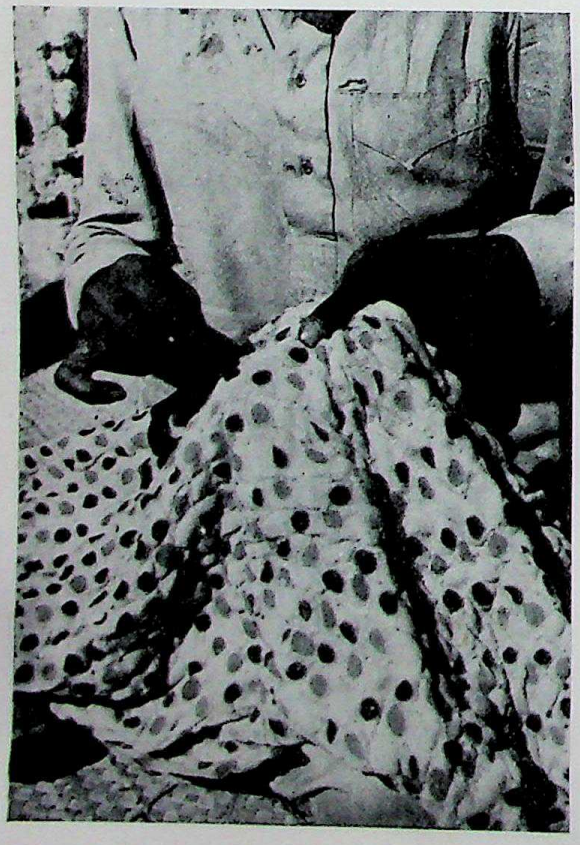

4.

Stages of *bandhani* work. 1. The coarse type of knotting of the fabric with waxed thread. 2. Close-up view of the work. 3. The fabric knotted in the requisite design. 4. Sometimes after the final dyeing, the white spots of the design are coloured by applying the dye directly to the sari by means of cotton wool.

(*Photos :* B. Bhansali)

In the *patola* of Patan "there is no diaper, the pattern is laid sideways (i.e. facing the sides, not the ends of the sari), and the border stripes are carried within the field and portray a series of elephants, flowering shrubs, human figures and birds repeated in that sequence and so placed that the feet are inwards or towards the centre of the sari, not outwards as is customary with border patterns. The field colour in the Patan sari is dark blue-green with the patterns in red, white and yellow."

In the *patola* of Surat "the background of the border is usually green, while that of the field is dark red."

The chief designs in use at Patan in North Gujarat are eight in number according to G. U. Patel :

Nari-kunjar bhat : dancing girl and elephant design with a parrot included. Often other birds, trees and human figures are depicted.

Pan bhat : leaf design ; the leaf is presumed to be that of the sacred *pipal* tree *(Ficus religiosa).*

Rattan chowk bhat : cross or diamond designs, often with interspersed diamonds also.

Okhar bhat : water-cress design. Perhaps this should be *akhrot bhat* — walnut design.

Phulwadi bhat : floral design, often enclosed in a single-line diaper, each diaper with three flowers.

Wagh-kunjar bhat : tiger-elephant design, the two animals alternating.

Chhabri bhat : basket design; each square containing an elephant is made up of four quadrants which seem to form a basket when any two of them are considered together.

Chowkhadi bhat : a diaper with a double outline, each diaper containing three flowers borne on a stem.

Another design is also seen at Patan, the *Ras bhat* or dance design, which is perhaps of fairly recent origin. Nowadays we also find many mixed and geometrical patterns.

"In the *Patola* colour design there is no harshness or abruptness, the colours flow one into the other. In the mingling of these colours, in the simplicity and treatment of decorative detail, in the perfect harmony and distribution of the colouring, lies the triumph of the *Patola* craftsman. His colours are never bright or gaudy, they are the colours of the earth, of stones, with the depth and brilliancy of deep glowing jewels dug from the bowels of the earth." (Premlata Jayakar, Marg, II, 1.) The traditional colours are only five — red, yellow, green, black, and white in order of importance — but nowadays more subtle colour harmonies are often adopted to suit the modern urban paste.

The actual technique of making the *patola,* both the dyeing and weaving, may differ slightly in different regions, but the general principles are the same everywhere. A brief description of the dyeing process has already been given, but further details are essential, especially regarding the mode of weaving.

The first step in the process is the tie-dyeing of the warp and weft threads according to the design to be produced. As this is a laborious job, bilateral or quadrilateral symmetry in the design is desirable as being the easiest to calculate for and produce.

The warp and weft threads are stretched on separate frames and the design marked on both in outline with charcoal to show the lengths which have to pass under different shades in their correct sequence. After the warp has been marked, it is sectioned according to the above-mentioned lengths ; the ends which have to be dyed in the same sequence of shades are grouped — the total ends are first grouped according to the number of repeats in the design, and the sub-divisions of each are grouped together.

Tying of the threads now begins. The dyes are used one after the other and mixed shades obtained by combining them, though used singly, one after the other. For example, all bundles of warp threads, except those which are to be red or black are tied with waxed cotton thread, and exposed threads dyed red. The yellow and green parts of the threads are now exposed but those already dyed red are covered. The dyeing now follows. Similarly, the areas intended to be blue and black will be exposed in turn, the other areas covered by tying, and the threads dyed. Mixing is achieved when yellow-dyed areas are again dyed blue to give green, or red-dyed ones dyed blue subsequently to produce a warm black. The areas to be white are the first to be tied and the last to be untied.

The hanks of warp thread are now untied and each section and the threads returned to their original places in the warp. When this is done the design becomes visible and if there are any faults in it, they are now corrected. The same is done with the weft threads, wound on bobbins and numbered.

Now comes the actual weaving. Naturally this proceeds very slowly, sometimes only nine to ten inches of cloth being woven in a day, and it may take anything up to a month to complete a *patola* depending on its size.

Formerly, the whole sari was done in the *patola* technique, its basic colour generally being red, green, yellow, or black. Nowadays, however, the tendency is for a less elaborate style and the body of the sari is kept plain, only the border or the *pallav* being in *patola* work. The technique being difficult and laborious, it is but natural that there would be only a few traditional designs.

The *patola,* although not called by that name, but at least double *ikats* in silk and cotton, very similar to the *patola* of Gujarat, are made at Banaras, in Orissa, and at Hyderabad in Andhra Pradesh. The designs and technique are rather different in Orissa. For example, in the Orissan designs, animal figures are common, especially the camel, an animal never seen in the Gujarat variety, and temple architecture. Other traditional motifs of the Orissan warp-weft tie-dyed technique are the fish, trees, flowers, and flowing streams — all highly conventional in treatment. Though

settled in Orissa, the Hindu weavers came originally from Delhi and Bengal. They use imported silk but indigenous dyes, the common article produced being the *odhani* or wrap, often used for ceremonial purposes but which cannot be called a marriage garment.

The design is first traced out on a piece of paper of the "graph" type to calculate the number of picks per inch required. The warp threads are dyed according to the calculations from the graph, starting with the lightest colour. The edges of the weft are dyed in the main colour. The weaving of the fabric is such that the design previously arranged by the dyeing process, appears the same on both sides of the fabric, as in the *patola.*

Single weft or warp *ikats,* either in silk or cotton, are also made elsewhere as Watson recorded in A.D. 1873 the availability of such fabrics from Kumbakonam, Tanjore, Tiruchirapalli, Nepal, Sind, and Mysore. Wool *ikats* are unknown in India though fairly common in certain South American countries.

Islam forbids the use of pure silk fabrics and, therefore, mixed silk and cotton textiles called *mashru* are common in India, especially among the Mohammedans. Some of them are very beautiful, particularly those with a wavy line effect. In this, the warp threads are tie-dyed and the weft threads may be dyed, but definitely not tie-dyed. These *mashrus* are also made in pure silk or cotton, but the true ones are the mixed silk and cotton fabrics, permitted even to orthodox Mohammedans by religion. Sometimes, the wavy effect is produced not by tying but by special weaving of differently coloured weft threads. Such fabrics are called *sangi,* and are naturally much cheaper to produce. The warp is also of two colours and by their alternate use in weaving produce the wavy effect.

The *gulbadan* is a cross between the *mashru* and the *sangi,* as the warp threads only are partially tie-dyed, the weft never.

INDIAN CARPETS AND RUGS

It is now believed that the art of manufacture of pile carpets was introduced into India by the Saracens as they did into Europe. Yet it must have been Persia — from Kurdistan, Khorassan, Kirman — that they themselves must have derived the art. In support of the argument of Persian derivation of the art-craft, it has been pointed out that nearly all the patterns on them can be traced back to Persian originals. Yet, many like Shanti Swarup, refute this theory : "It was once believed that India learnt carpet-weaving from Persia. But the methods and designs of the carpet weavers in our country are so peculiarly indigenous and so distinctly recognisable from those of other countries that this theory has now been abandoned."

In India, carpets and rugs are either of cotton, called *daris* and *satrangis,* or of wool, though commonly the term *dari* is applied to all rugs. Correctly speaking these terms should be used only for for those made of cotton and in which the designs are striped blue and red, blue and white, or blue and brown. Often, diamonds and squares are introduced into the pattern, with a touch of gold and silver. The chief producing sites of cotton *daris* are many places in Bengal and in North India.

The correct term for the woollen pile carpet is *galicha* or *galin.* It should be noted that as far as Oriental products are concerned, the terms "carpet" and "rug" are interchangeable, and that is how they will be indiscriminately used in this chapter. The foundation of the carpet is a warp made up of the required number of strong threads of cotton or hemp. The pile is formed by cleverly twining short lengths of differently coloured wool round each of the warp threads so that the two ends of the woollen tufts stick out in front and which are subsequently trimmed.

The carpet-maker's "loom" consists of a frame of four beams, the horizontal beam being wedged between the upright ones, the whole set up leaning against a wall, with the carpet-weaver sitting in front of it. The warp-setter stretches a foundation thread over the top cross-beam, passes it under the lower horizontal beam, back again over the top, and so on, till the required number of warp threads have been stretched continuously over the top and lower beams. Now is the turn of the weaver who follows the pattern and colours from a design hanging in front of him and prepared by the Master-weaver, taking the wool from balls of different colours placed near him. A knot is made over the foundation threads and the wool cut off with a knife kept hanging from his right wrist. When one row of knots has been tied, the weaver passes a weft through the warp, running it alternately over and below the warp threads, and presses this thread against the row of knots with a blunt comb-like instrument called the *kangi.* Sometimes, for added strength, the knots may be further stitched to the warp threads. After a number of rows have thus been made, the wool is cropped with a pair of curved scissors, but is not cut to the final length at this stage, as this is a step in the process of manufacture carried out by another expert who uses a broad and very sharp knife for the purpose. This is skilled work especially as the expert works only "by feel". When the whole carpet has been knotted and cropped, it is taken off the loom and the warp threads cut about four to eight inches from the ends of the carpet. These threads are knotted in pairs so that the knots press against the weft threads which as stated above serve to bind the rows of tufts. Finally, the carpet is carefully brushed to remove the remnants of wool clippings and is ready for the market.

It is said that the vice of Indian decorative art is its tendency to run riot, go out of control, to end in over-ornamentation and vulgar display. Whether this is true or not remains to be proved by those who believe it. But it can be emphatically stated that Indian textiles, and particularly carpets, are completely free from it. With unconscious subtlety, thin and light fabrics are delicately coloured and ornamented, and the heavier materials more richly, both the ornamentation and the colouring, perhaps subconsciously, adapted to the effect desired, especially when the fabric is used as it is meant to be. It is rightly said that it is "difficult to analyse the secret of the harmonious bloom of Indian textures, even with the aid of Chevreul's prismatic scale," and that "it is only through generations of patient practice that men attain to the mystery of such subtleties."

P.C.M., writing in the *Statesman* (1-1-1956), applies an esoteric symbolism to the designs of carpets. "There is a hidden meaning in almost all designs found in Oriental carpets. The circle represents eternity ; the zigzag water and lightning ; the swastika guiding light in darkness ; the meandering line continuity of life ; the tree bounty. The whole carpet is said to be the emblem of eternity and the pattern the visible world of change."

The hand-woven cotton rugs of India, the true *daris,* are unlike any in the world, this indigenous craft being as old as the Aryan migration into the country. The *dari* is a pile-less cotton fabric with a simple design, usually merely plain stripes of blue, red and black, or only blue and white slightly modified with simple geometrical patterns. However old this craft may be, it must be admitted that the manufacture of pile carpets in India — even if an indigenous industry — reached a high stage only during the reign of the Mughals, Akbar having brought Persian weavers to the country. Under royal patronage the industry grew

and flourished, at least till the time of Shah Jahan, even the lesser potentates of the different provinces also maintaining carpet weavers and patronising their workmanship. As Sir George Birdwood wrote, "The princes and great nobles and wealthy gentry, who are the chief patrons of these grand fabrics, collect together in their own houses and palaces all who gain a reputation for special skill in their manufacture. These men receive a fixed salary and daily rations and are so little hurried in their work that they have plenty of time to execute private orders also. Their salaries are continued even when through age or accident they are past work ; and on their death they pass to their sons, should they have become skilled in the father's art. Upon the completion of any extraordinary work, it is submitted to the patron ; and some honour is at once conferred on the artist and his salary increased. It is under such conditions that the best art work of the East has always been produced." But it must be remembered that this was written many years ago.

There is no doubt that under the Mughals, carpet making was a major industry. In A.D. 1655, Terry wrote : "They (Indians) make likewise excellent carpets of their cotton wool, in mingled colours, some of them three yards broad and of a great length. Some other rich carpets they make all of silk, so artificially mixed as that they lively represent those flowers and figures made in them. The ground of some others of their very rich carpets is silver or gold, about which are such silken flowers and figures most excellently and orderly disposed throughout the whole work."

Even today it is possible to obtain Indian woollen carpets and rugs of good workmanship and a harmonious blending of colours at a reasonable price. The chief northern centres are Srinagar, Amritsar, Lahore in Pakistan, Hoshiarpur, Multan, Allahabad, Agra, Mirzapur, Sind (Pakistan), Jabalpur, and Jaipur.

The Herat carpets are of course famous and originated in the strongly fortified city of Herat in Afghanistan. But Herati type of carpets used to be made in considerable numbers in the northern regions of India, and especially at Agra, Delhi, and Lahore. According to F. H. Andrews : "The earliest examples are remarkable for the boldness of the curving stems and the soft, cool harmony of the colour, in which is found a good deal of a fine green and deep blue. The border consists, usually, of a broad band, separated from the centre and edged on the outer side by one or two very narrow bands. On the broad band, bold and highly conventional flowers alternate with long serrated leaves carried on delicate and gracefully undulating stems. The most striking feature in all these early carpets is the appreciation for the ground and the proper restraint in the 'quantity' of the pattern. There is something imperial in the great curves and bold touch of the designers, who command ample breadth while achieving extreme closeness of stitch. Their work never looks crowded, and there is always a proper proportion of border to field. To the artist and designer, one of the most striking features of these Herati designs is the extremely skilful choice and use of outlining colours. To instance a few examples — on a deep red ground a rose pink will be outlined delicately with white . . ." (*The Journal of Indian Art and Industry,* Vol. XI, 1906.)

Kashmir has always been famous for its carpets, often resembling the equally famous shawls of that land through which winds the Jhelum, its course probably having initiated the "pear" design so popular here. The quality of these carpets used to be excellent, the colour schemes harmonious and delicate, the whole effect dignified and aesthetically charming. But the rugs made today are not so good ; the colours are more brilliant and harsher in their harmony, the designs often showing an undesirable European influence. However, they are still dyed with vegetable dyes and are strongly made with the famous soft and silky wool of the region.

Mention may also be made here of the embroidered rugs, called *gabbas*, made in Kashmir. These are generally small and are made "by cutting out forms in woollen cloths of various colours, which are inserted and counter-changed like the *opus consutum* of mediaeval times, the edges and field being worked in a large embroidery stitch in suitable colours."

Mrs. K. S. Donkerkery describes the *gabba* as "a kind of appliqué work for which tattered woollens come in handy and can be used with advantage to present the most lovely designs. The material is sewn on to the base with the chain stitch, so as to make the rug appear almost like a quilt. *Gabba* rugs look very attractive in their dark and sombre colours, relieved by bright flashes. The effect of the rich blending of colours is to give the old material a new appearance."

Nowadays, Kashmir also makes the cheaper chain-stitch rugs, which though inferior in quality are very charming. The base of the rug is a thick hessian cloth, the floral motifs being embroidered in coarse wool.

Amritsar is another important carpet producing centre. The hereditary weavers used to procure their fine wool from the surrounding mountains and valleys, but their patterns may be said to be inferior to that of the best of Kashmir. The technique of weaving is superb, equalling in quality that of the finest Persian carpets, there being as many as two hundred Sehná knots to the square inch. "And since when tying a knot one thread of warp is doubled under the other, as in Bijars, and the threads of weft are pressed down very firmly, the texture is unusually close. The nap is short ; the sides are overcast ; and as a rule, the lower end has a cotton web and the upper end a web and fringe." (Walter Hawley.)

Lahore is now in Pakistan, but being an important city of the Punjab of pre-partition days, this centre of the carpet industry cannot be omitted from our discussion. It was here, about the year A.D. 1580, that Akbar established the imperial carpet factory and it was here that some of the finest examples were produced in Mughal times ; the few that have survived to the present day exhibit a fine sense of drawing and

brilliancy of colouring. In British times, rugs with both wool and cotton foundations were made and even today there are many factories in Amritsar that cater to the ever-growing demand for a cheaper and therefore naturally inferior product. The Lahore rugs resemble those of Amritsar, but then the two cities are only a few miles apart. The character of the weaving is very similar if not quite the same, but as a rule the rugs of Lahore are in lighter colours and made with fewer knots to the square inch. Again, the borders may show geometrical patterns, with the general centre design less crowded and the floral themes more artistically portrayed.

Multan, a part of undivided India before Independence, is another centre, but on the whole these rugs show little artistic merit though they have a certain individuality of their own. The dyes used are both vegetable and aniline, the weavers generally dyeing the wool themselves. The designs are geometric (the octagon, chessboard and decagon being common) or crudely floral. Animal figures like those of dogs, lions, peacocks, etc., conventionalised as in embroidery, may also be present. It has been stated : "One common feature of all patterns is two or three rectangles concentric with the carpet and near to its borders. The intervening spaces are patterned with small regular figures and the ground filled up with animal or other designs." The colours are strong and principally in shades of yellow, red, and blue.

We read in the *Indian Gazetteer* : "It seems likely that rugs and carpets brought over from Turkistan . . . may have served as the original inspiration." In the Multan pile carpets, "the patterns have a decidedly Tartar air. They are excessively bold and yet not clear in detail. The usual size of the stitch, together with a peculiar brightness in the white, and their rather violent red and yellow, give them a somewhat aggressive and quite distinctive quality of colour." (Percy Brown.) These carpets are too long for their width, a characteristic of many carpets of Persia and Turkistan.

In certain north-western areas of Pakistan, the unusual *nakhai* is made. In this, the weft threads are pulled out in loops about one inch long and allowed to protrude between each pair of the warp threads. These loops are never cut, but get twisted when the rug is finished. The colours commonly used are crimson, purple, black, and yellow, with an occasional use of green, to produce crudely geometrical designs. These rugs, if not quite high-grade from the aesthetic point of view, have a quaint appeal, probably due to their unusualness and rough simplicity, symbolic of the type of people who make and use them.

The Jaipur carpets can be dismissed briefly in the words of John Mumford : "The carpets woven copy the designs found chiefly in the rugs of eastern and middle Persia. They nearly always present the cypress tree and also many animal forms, laid upon a ground of dark red, blue, or ivory white. The borders have a swaying vine pattern, with customary floral adjuncts." Good quality rugs are produced at Bikaner and Ajmer, of superior wool, and carefully designed, apparently under expert supervision.

The carpets made at Agra generally have a cotton foundation. The warp threads are prominent at the back and the texture is looser than in the Amritsar products. The nap is short but the fibres of the knots blend together well. Very often the field colour is made up of delicate shades of green, blue, or fawn. These carpets are generally large and heavy unlike those of Multan where they are of rather moderate size, as a rule. The designs are more or less like those prevalent in Mughal times, the cone being the most common. It may be pointed out that there is no mention of the manufacture of carpets at Agra in the *Ain-i-Akbari,* written by Akbar's favourite minister, Abul Fazl.

Allahabad on the Ganges does not produce a very large number of carpets which though large are generally loosely woven with the warp threads equally distinct on the back. They can stand no comparison with those of Amritsar or Lahore.

Mirzapur has always been an important centre of the carpet weaving industry. Situated amid a past cotton-growing area, it is not surprising that it should be noted for its carpets, woven well, and dyed with fast colours. Unfortunately, the wool used is rather coarse and not very durable ; for this reason alone if for no other the Mirzapur rugs are not in great demand today among those who appreciate artistic qualities combined with durability.

Regarding the Mirzapur carpets, A. W. Pim has written : "The patterns which are usually stiff and conventional, are divided into three classes according to the character of the border known as *hashiya barik, bari hashiya* and *sozan*. The best designs are derived from Persian sources." (*Woollen Fabrics in the United Provinces.*)

Even during the early years of the present century, only vegetable dyes were used for the best carpets, although synthetic colours were not unknown for the cheaper grades. According to William Crooke, who was the Collector of the district in those days, the beautiful red colour of the high-class products was produced thus : barley flour was boiled with water and coloured with lac dye. Allowing the mixture to stand for a few days, the skeins of wool were soaked in it for a week or till the necessary shade had developed. The skeins were then thoroughly washed in the waters of the river Ganges and dried ready for use. To produce a rose-red, the bark of the *Symplocos racemos* was used, and the flowers of *harsingar* (*Nyctanthes arbor-tristis*) for orange ; different shades of blue were achieved with the use of indigo and myrobalans.

Till A.D. 1867, when Mirzapur carpets were shown at the Paris Exhibition, they were, if not too strong, good in texture and colouring, and the designs fitted well with the use of the coarse wool of the region. But at present, the materials seem to be chosen indiscriminately, the texture is much coarser, and the colouring rather crude. The chief argument against a

Mirzapur carpet however is its lack of strength and wearing qualities, the staple being very short, which with a loose texture, making for a product that does not last well and so proves uneconomical in use.

An imitation pile carpet in coloured or undyed cotton, called *dulicha,* also used to be made at Mirzapur.

About two hundreds miles from Allahabad stands Jabalpur, about the rugs of which Sir George Birdwood wrote in 1880 : "The foundation as now scamped is quite insufficient to carry the heavy pile which is a feature of this work ; and is moreover so short in the staple as to be incapable of bearing the tension even of the process of manufacture . . . The designs once had some local character, but have lost it during the last four or five years."

The Sind (Pakistan) carpets, however good they may once have been in colouring and designs are today not worth detailed consideration. The cheaper varieties are made with a pile of cow hair or goat hair on a foundation of cotton and hemp mixture. Yet, the colouring continues to be interesting and harmonious, and the bold designs have a peculiar charm all their own. However, Sir George Birdwood calls them "the cheapest, coarsest, and least durable of all that are made in India." The use of goat hair gives them their peculiar lustre. The designs are geometrical but fantastically evolved, mostly "on either a deep indigo or deep madder ground and traced out in orange brown and ivory white, intermixed with red when the ground is blue and with white when the ground is red. The ends terminate in a web-like prolongation of the warp and woof beyond the pile, and when striped in colours or worked in a small diaper, form a most picturesque fringe."

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About two hundred miles away stands Masulipatam, an important centre from where the East India Company used to ship many fine carpets to Britain and the West, over a century and a half ago. In those days, they were considered some of the finest made anywhere in the country, but the quality has deteriorated recently, due to poor workmanship and the use of inferior raw materials. The dyes used are often aniline and hence not as lasting as the older vegetable products. As Sir George Birdwood wrote, "these glorious carpets of Masulipatam have sunk to a mockery and travesty of their former selves," though "formerly the finest produced in India."

In olden days, the designs of Masulipatam carpets were full of beautiful details and more varied in their colouring than those produced today. The old designs were surrounded with a delicate outline of a tint in perfect contrasting harmony with the colours of the parts surrounded by it. Today, instead of the beautiful designs which "blossomed as delicately as the first flowers of spring," crudely coloured blotches of unmeaning form have become common.

Eluru is noted for its weaving tradition and it is here that some centuries ago a number of Persians settled and passed on to their descendants the craft of the shuttle. In former times, some of the finest rugs of South India were made here, mostly by Mohammedan weavers. Even today, some of the ancient craftsmanship exists. Good quality wool is used, coloured with vegetable dyes. Unfortunately, the craft seems to be steadily declining, the weaving being poor nowadays, and the patterns rather commonplace. In 1903, Henry T. Harris wrote in his report of the Madras Industrial and Art Exhibition : "The exhibits of carpets sent from Ellore were poor in conception, weave, and colour . . . The patterns in use were poor and often modifications of cheap Wilton, Kidderminster, and German power loom designs. Some of the old patterns are still with the weavers, but unfortunately there is no trade demand for this fine class of goods, the old dyes are being forgotten and have given place to cheap anilines unskilfully applied." The warp of the rugs is cotton and the weft often of hemp or jute. The pile is of a very inferior type, consisting often of wool taken from dead sheep and treated with lime. The number of knots of the pile to the square inch is rather small and though the patterns are diverse, both geometric and floral, they are not outstanding.

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Silk carpets are also made at Tanjore and Salem, and velvet ones at Banaras and Murshidabad.

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In the words of Sir George Watt, "Patterns are occasionally worked within the felts by so arranging the felting material as to leave spaces for the coloured wools to be inserted in their required positions, or the result is more expeditiously attained by the pattern being made from coloured felts, clipped up and the portions assorted as desired, then subsequently imbedded in the general felting material."

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woollen cloth which are then sewn together and used as rugs These can be and often are very beautiful

According to B. H. Baden Powell, in the Punjab, the one of larger size is called *satranji,* the *dari* being "a narrow piece just big enough for a bed to stand on." The *dari* seems to be peculiar to India and is apparently not known anywhere else in the East. There is no doubt of its great antiquity and is certainly indigenous, whereas the pile carpet is perhaps not. As Sir George Birdwood observes, "No conventional ornament is probably more ancient than the coloured stripes and patterns we find on Indian cotton cloths and the cotton carpets called *satranji.*" As mentioned before, the designs are commonly stripes in blue and white or red and blue or black. But according to Baden Powell, "A clever workman can produce various shapes in a *dari,* such as squares, diamond shapes, etc., provided only that the figures of the pattern are not too complicated, and are made up wholly of straight lines."

Druggets, made in the south and especially in Bangalore, are inferior woollen pile carpets. Made from waste wool clippings and often of wool from dead sheep, they are naturally much cheaper. The designs, whether geometrical or floral, are modern.

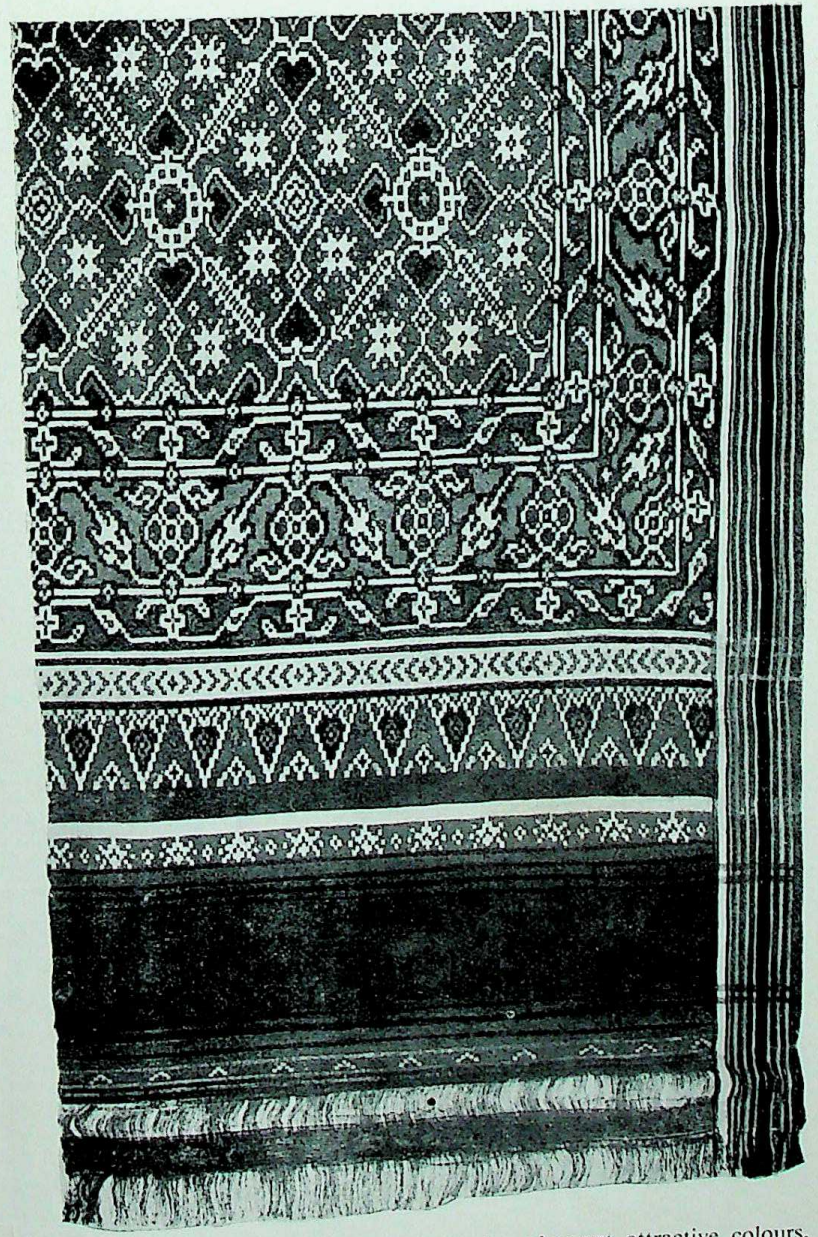
It must be noted that the descriptions of carpets as given in this chapter refer to traditional designs only.

It is only appropriate to conclude this chapter in the words of Sir George Birdwood who during his lifetime made such a deep study of the many phases of Indian industrial arts and handicrafts :

"In all these carpets the first thing to observe is the complete subordination of the decoration to the surface. A carpet presents, of course, a flat surface, and the decoration in these Indian carpets, it will be seen, is never allowed to disturb the impression of their flatness. This effect is obtained by representing the ornamentation on them in a strictly conventional manner, and without shadow. The next thing to observe is the skill with which the ornamentation is distributed, nearly always in a symmetrical manner, and with such perfect balance that even where it is most crowded there is no effect of overcrowding."

It is unfortunately too true that the art of the carpet weaver has deteriorated today in almost all parts of the country. If so, the blame lies at the doors of his ignorant customers, for as Sir George Birdwood believed, "Few people seem able to realise that when buying oriental carpets they are in fact choosing works of art, and not manufacturer's 'piece goods,' produced at competition prices. Formerly the native artist strived his utmost to produce a pleasing design, knowing that the payment he would obtain for his work would depend upon the beauty of its design and superexcellence of fabrication ; but now his first thought is to reduce his work to the tariff of charges ruling in the European markets, and to deliver it punctually within the time fixed by the export firms of Calcutta, Madras, and Bombay."

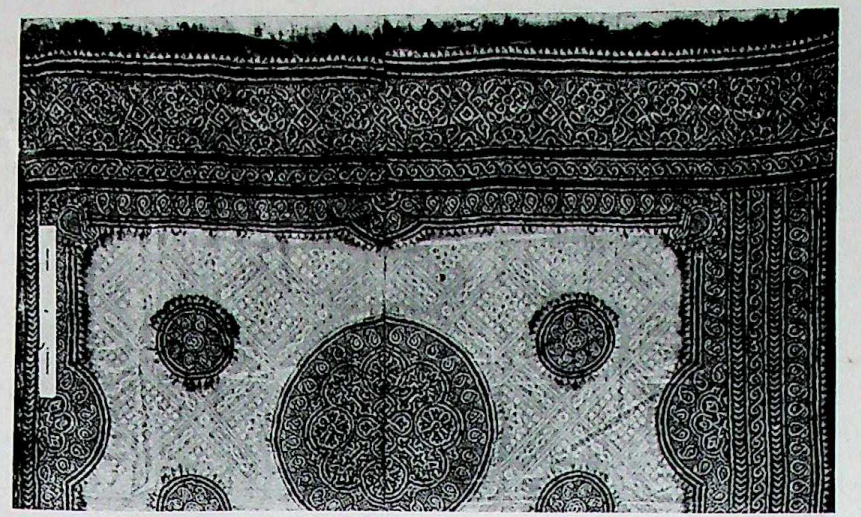
Bandhani or tie-and-dye work. An elaborate and beautiful specimen in traditional style.

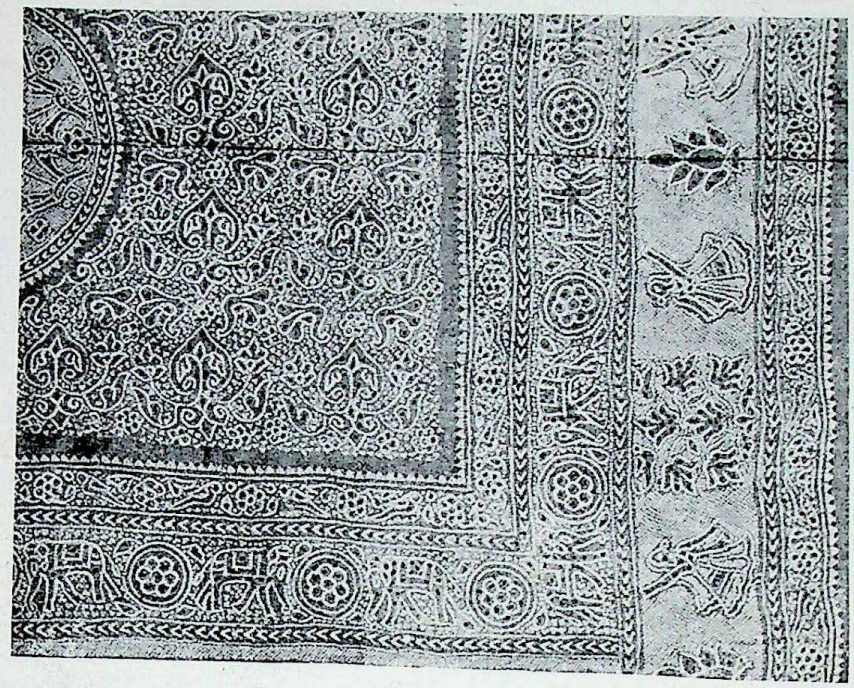


Patola, a silk marriage sari from Surat, in sober yet attractive colours, dark reds predominating.

(From *The Journal of Indian Art and Industry*)

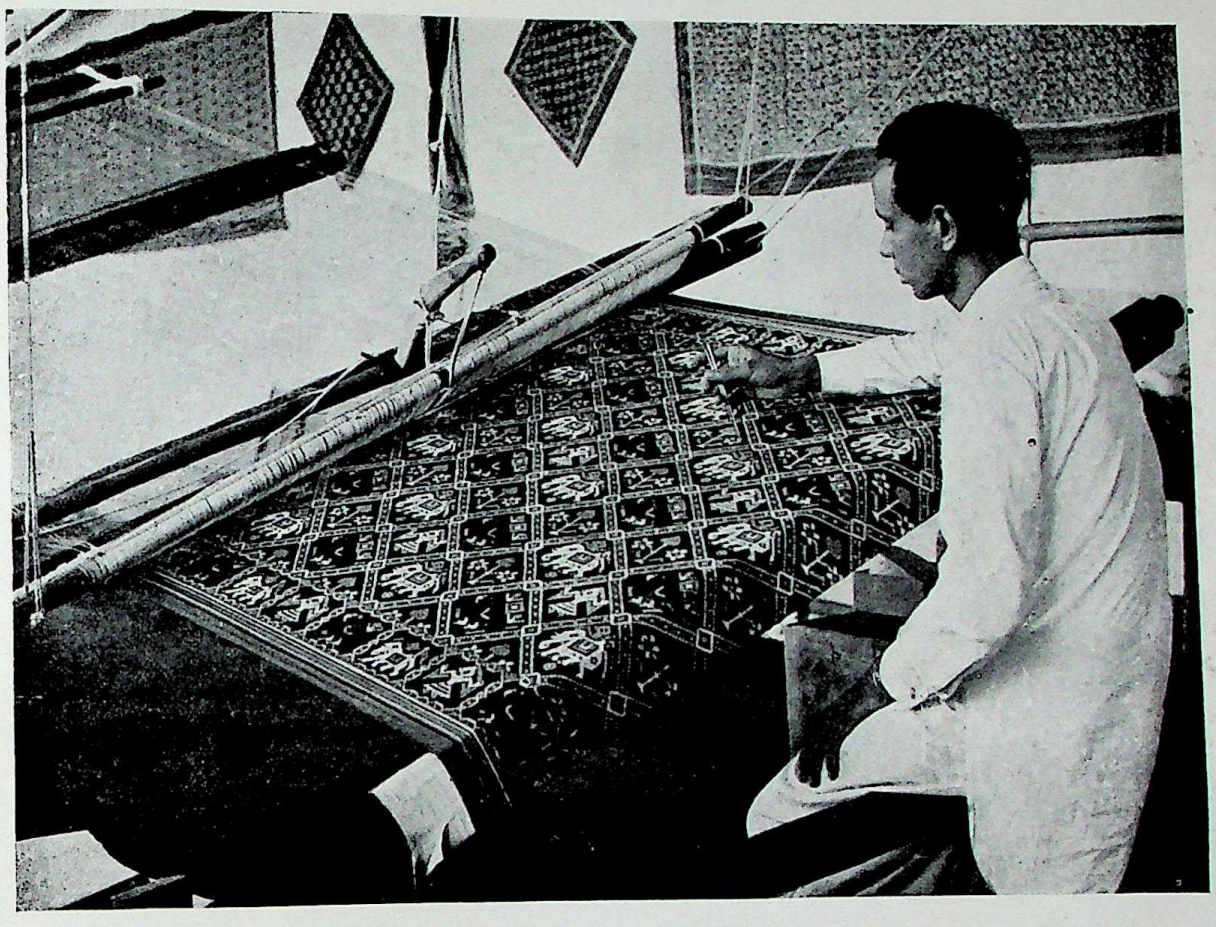
Old sari with Raslila scenes in *bandhani* work, from Ahmadabad.
(*By Courtesy of Baroda Picture Gallery and Museum*)



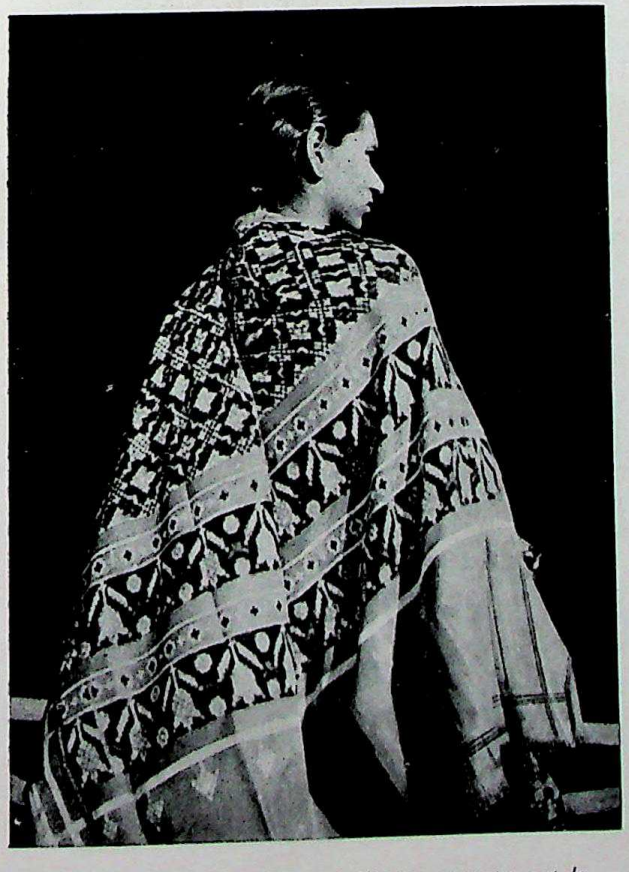


Top : Part of *bandhani* work head-dress from Rajasthan. *Bottom :* Corner of head-dress with dancing figures and elephants in *bandhani* work, from Rajasthan.

(*By Courtesy of the Calico Museum of Textiles, Ahmadabad*)



A *patola* weaver of Patan at work on his simple loom.

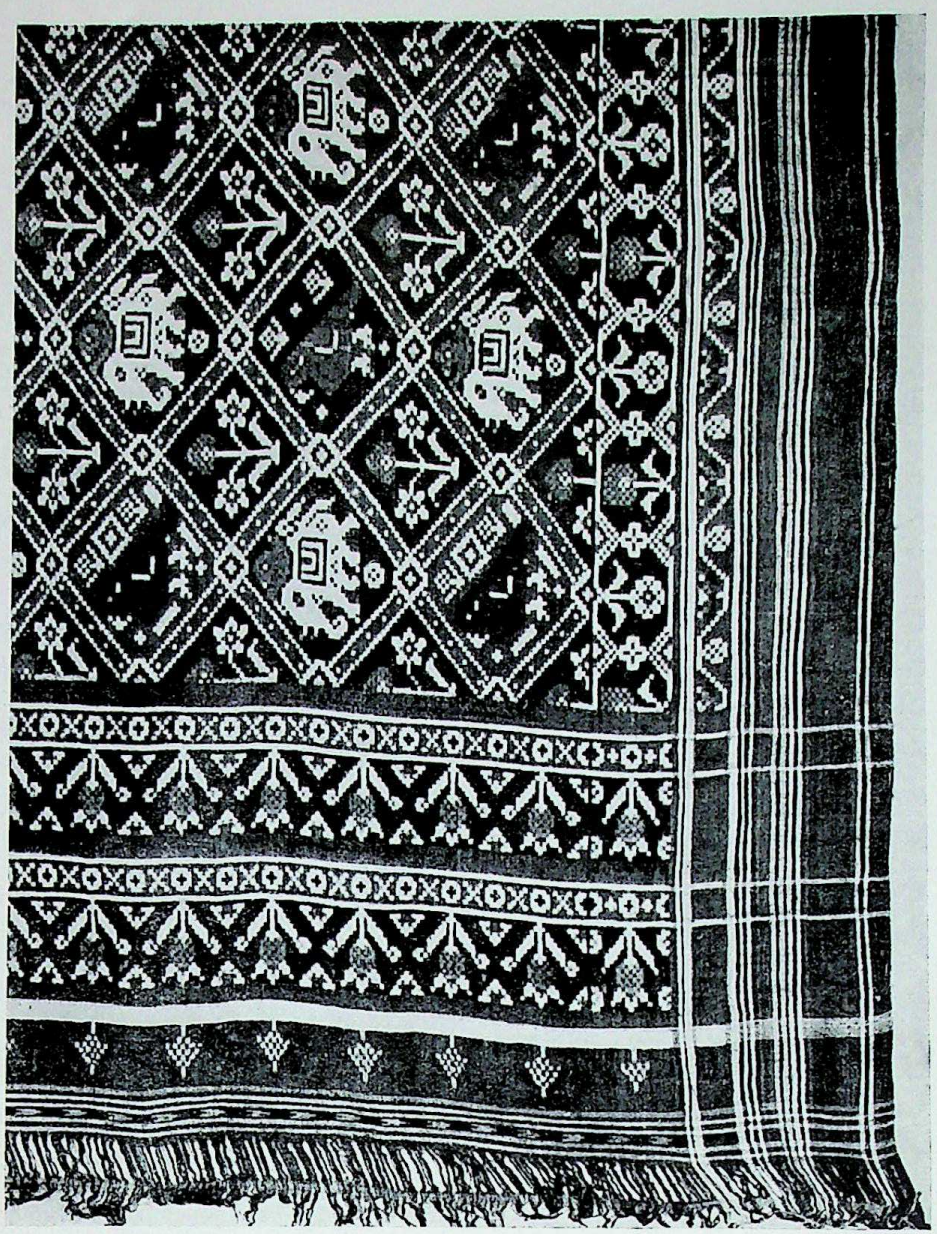


The *patola* in use. Gujaratis like to present a *patola* to the daughter on her wedding.

Corner design of a Patan *patola*. It may cost anything from Rs. 400 to Rs. 800 today.

(*Photos :* P. R. Shinde)

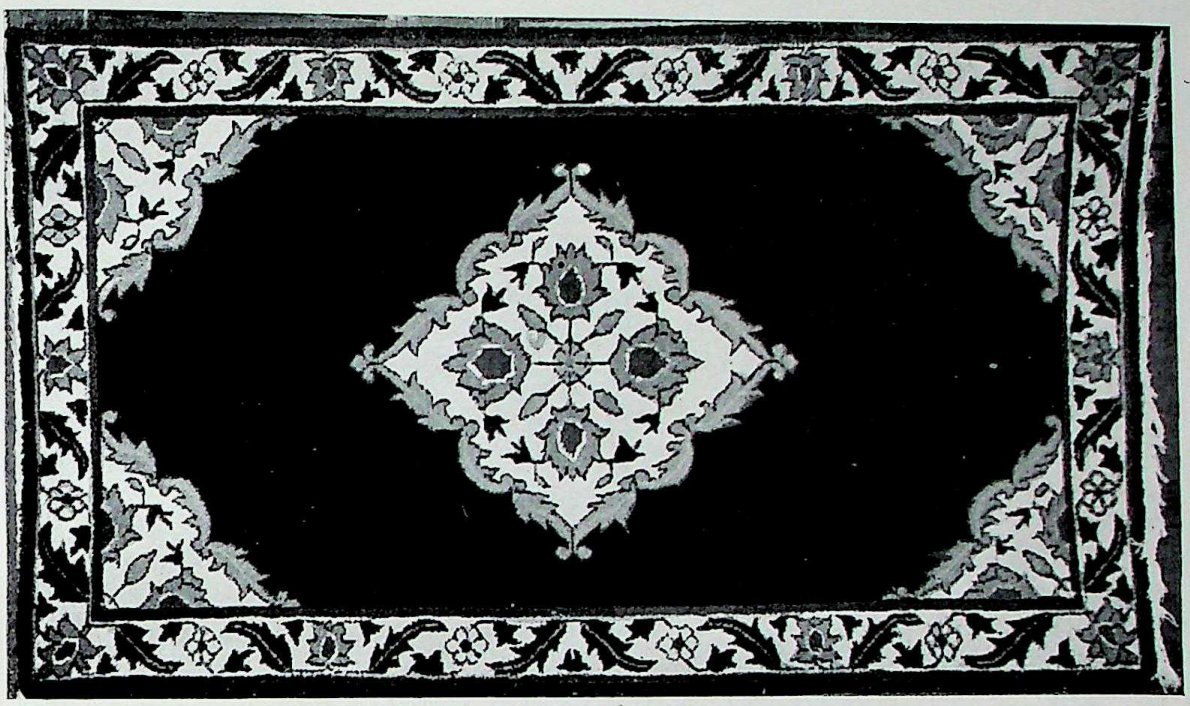
The traditional Nari-Kunjar design of a *patola* of Patan.
(*By Courtesy of The Calico Museum of Textiles, Ahmadabad*)



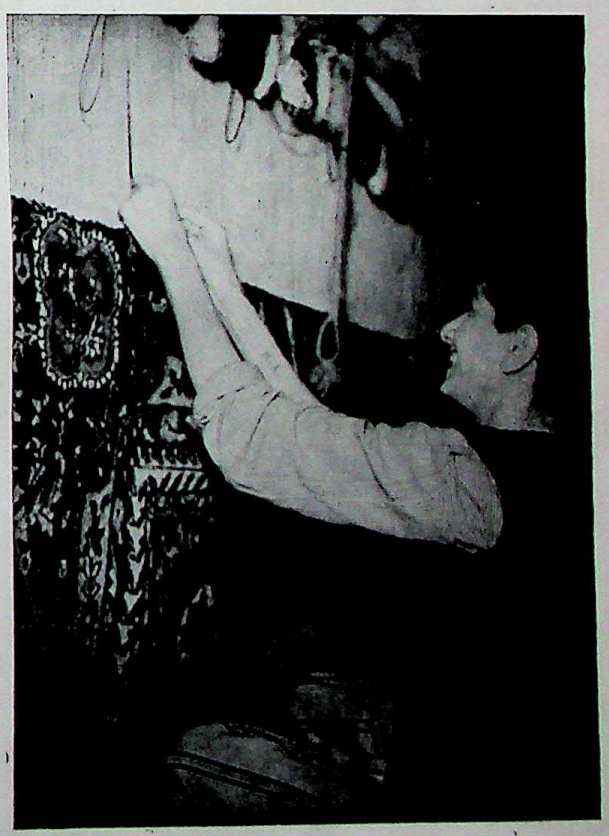
The traditional Ratan-Chok design of Patan *patola*.
(*By Courtesy of Baroda Museum and Picture Gallery*)

Group of crystal vases and boxes, some studded with gems, and examples of Indian jewellery from Northern India. The beautiful crystal articles exemplify the simplicity of the main lines, the refinement of the ornament employed and the exquisite workmanship.

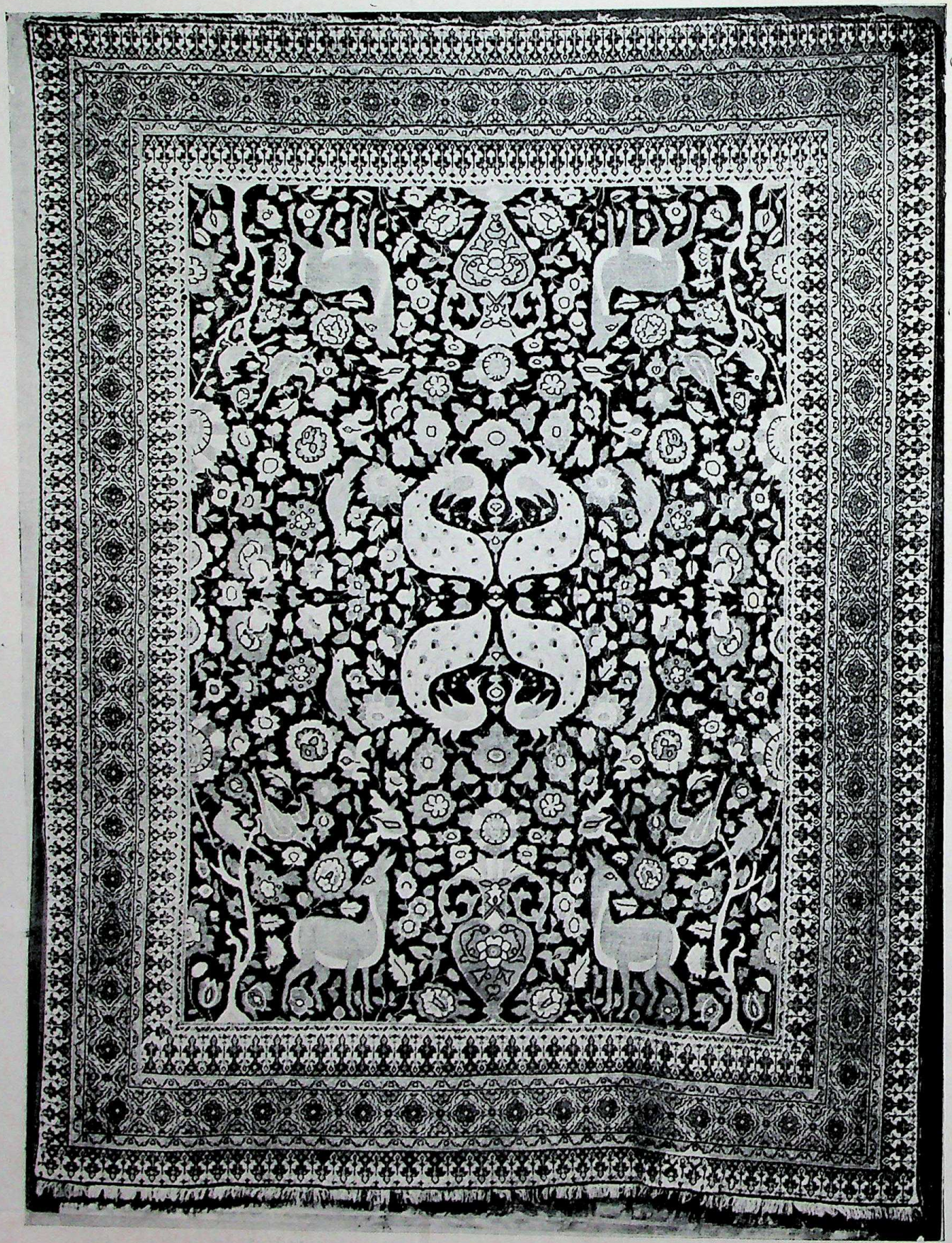
(From *The Industrial Arts of the XIXth Century* by M. Digby Wyatt)



A woollen pile carpet of the Warangal-Eluru region
(*Photo :* R. V. Rao)

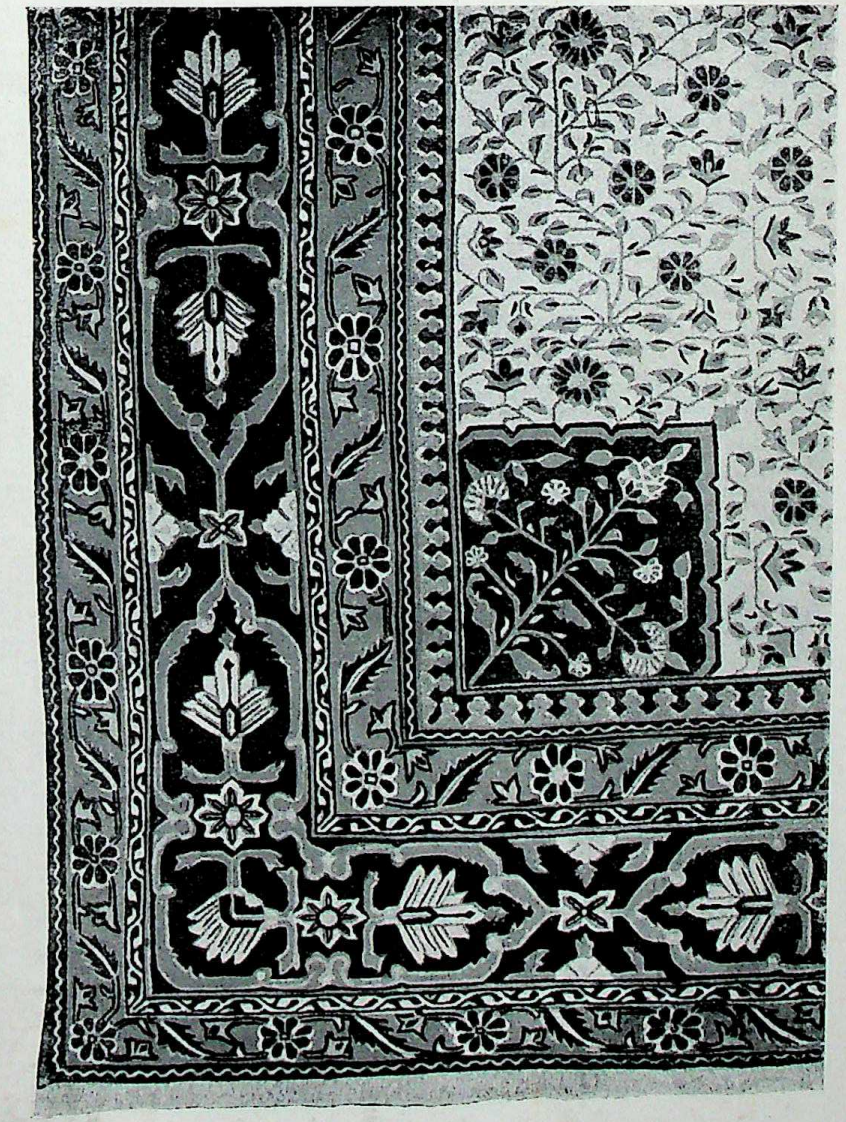


The skilled carpet-weavers of Kashmir at their vertical looms.
(*Photos :* S. G. Pradhan)



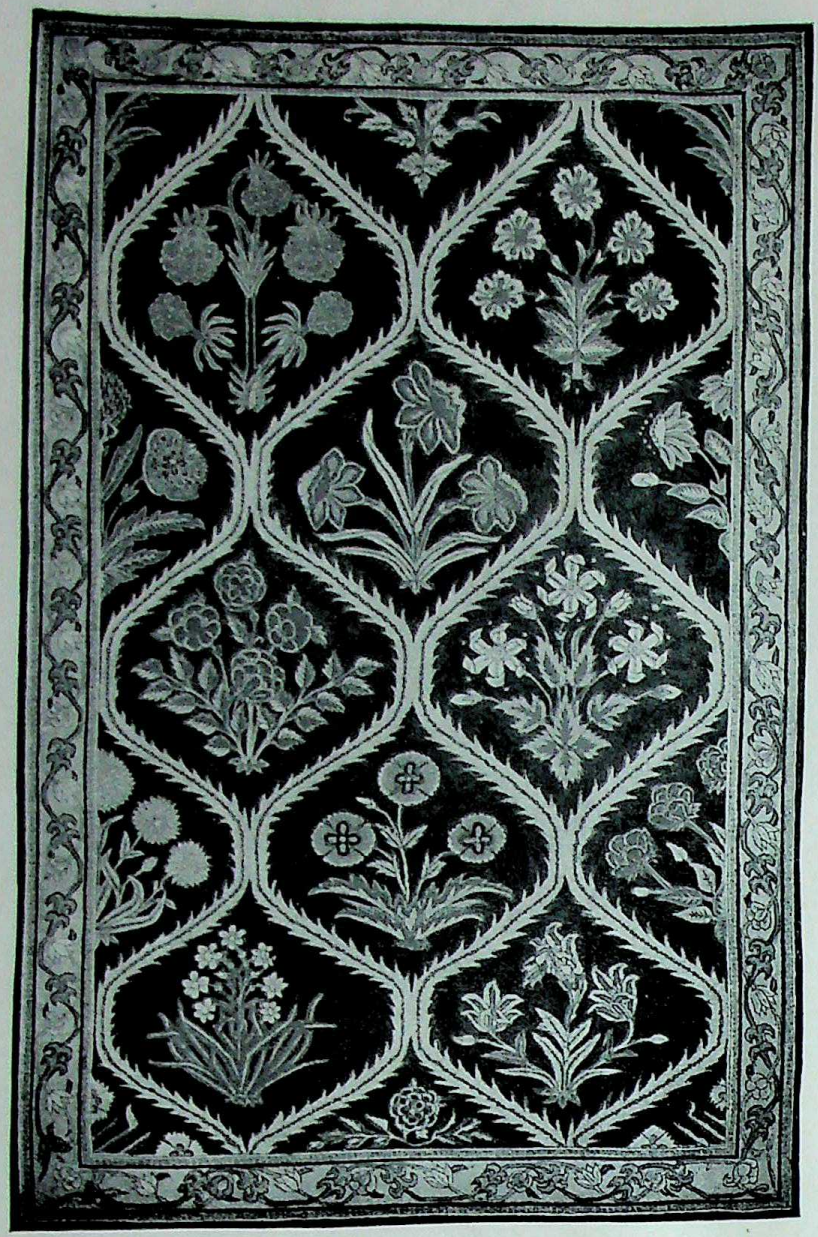
A beautiful woollen pile carpet from Northern India. 17th Century.
(By Courtesy of State Hermitage, U.S.S.R.)

Woollen pile carpet from Mirzapur.



Woollen pile carpet from Hyderabad.

(From *The Journal of Indian Art and Industry*)



Woollen pile carpet from the Royal Factory at Lahore. 17th Century.

Woollen pile carpet from Srinagar, Kashmir.

(From *The Journal of Indian Art and Industry*)

REGAL UMBRELLAS, TRAPPINGS AND CAPARISONS

Among the many ancient insignias of royalty may be mentioned caparisons, trappings, horse and elephant cloths, regal umbrellas, *howdas,* peacock and yak tails, etc. "They look very brave in procession through the narrow, picturesque streets thronged with the gay crowd of an Indian town, advancing tumultuously between the high, overhanging houses, painted storey above storey in red and green and yellow, like macaws." The regal umbrellas or *chattries,* the *chauries* or horse-whisks made of ivory or sandal-wood or even of yak tails, the large fans of peacock feathers used to drive away flies, are some of the most important symbols of royalty throughout the Eastern world.

In the *Ain-i-Akbari* of Abul Fazl, the favourite minister of Emperor Akbar, the following are given as the chief symbols of state that wise monarchs consider as marks of divine favour :

The four insignias to be used by kings only are the throne (*aurung*), the royal umbrella (*chattar* or *chattry*), the sun fan (*sayiban*) and the *kowkebah* or the stars made of gold or silver and hung in front of royal palaces.

The different varieties of standards of the highest order — the *alum,* the *chuttertowk,* and the *tementowk* — may be used only by the king and his military officers of a very high rank.

Among the other insignias of state are mentioned different kinds of trumpets — the *kerna* made of silver, brass, or gold, the *nefeer,* the *serna* and the *sing,* all shaped like a cow's horn and generally made of brass ; the conch shell ; the three kinds of native drums, the *nekareh,* the *dehl* and the *demameh* or *kowrekh.*

Abul Fazl reports that thus was the reveillé sounded in every garrison and armed camp in Hindustan and the Deccan at the order of the great Emperor Akbar : "And one hour before sunrise the lively blast of the *serna* awakens those who slumber ; and the *kowrekh* is beat a little. These are presently joined by the *kerna,* the *nefeer,* and all the other musical instruments excepting the *nekareh.* Then after a short pause, the *serna* and the *nefeer* play the musical modes, after which the *nekareh* is beat and the people with one voice pray blessings on his majesty." (*Ain-i-Akbari,* Gladwin Translation, A.D. 1800.)

The standards used on important religious or royal occasions were not only flags but even other devices made of metal and attached to the tops of long staffs, and reminiscent of those sculptured on the gates of the Sanchi stupa. These were displayed only during festivals and parades and were ordinarily kept safely wrapped in bags of scarlet cloth.

The regal umbrella was till recent times considered to be the most important insignia of royalty, and hence the title of *Chhattrapati,* "Lord of the Umbrella." The royal title of the King of Burma used to be, literally translated, "Lord of the Twenty-four Umbrellas." These umbrellas, large and bright vermilion in colour, have stood as the symbols of imperial power from time immemorial and in the *Mahabharata* we find frequent allusions to them as marks of royalty. It has been pointed out that according to this great classic, the gift of a pure white umbrella bearing a hundred ribs would insure for the giver a sure place in Indra's heaven.

In *Antiquities of Orissa,* Rajendralal Mitra has noted the fact that in the *Yukti Kalapataru,* detailed rules have been laid down regarding the making and the exact proportions of the different parts of utilitarian and regal umbrellas. Accordingly, a *prasada,* worthy of a king, had to have a stick of the choicest wood and ribs of carefully selected bamboo, covered over with scarlet cloth. A similar one but covered with blue cloth bordered with a fringe of gold, the *pratapa,* was good enough for a royal prince. The most important of the umbrellas was the *nava-danda,* used only on important state occasions like coronations, royal celebrations, and marriages of kings and princes. The ribs, the stick and the parts sliding on the stem were to be of pure gold, the handle made of rubies, with a diamond at the other end of the stick. The cover was to be of the finest silk, of the richest colours, and fringed with thirty-two looped strings of pearls, each loop bearing thirty-two of the gems.

An umbrella suitable for a nobleman could be much inferior in quality ; but the frame and stem may be of sandal-wood, mounted with gold. This *kanaka-danda* may have a golden knob at the end of the stem and should be covered with silk of the purest white, fringed with gold. Further, the umbrellas were often decorated with the feathers of the peacock, the parrot, and the heron.

The fly-whisk or *chauri* ranked only next to the umbrella in prestige. It was made of sandal-wood or of ivory, but those most highly favoured were made of the tail of the Himalayan yak. They had elaborately jewelled or enamelled handles. "To put gems and enamel on peacock feathers would seem like adding another hue to the rainbow, but there is no 'wastful and ridiculous excess' in the masterly way in which the Jaipur artist has used the feathers and gems, and his secret enamels to mutually enhance each other's effect. Nothing can be richer than his materials, nothing more harmonious and effective than the manner in which he has combined them."

The *howdahs* reserved for royal use were really beautiful objects, superbly decorated, fine examples of the goldsmith's and the wood-carver and turner and ivory worker's skill — richly deserving of use only by the highest in the land.

INDIAN LEATHER CRAFTS

The use of leather is very ancient in India. "Siva, the Great Destroyer in the Hindu Triad, is clothed in a tiger's skin, and deer skin was used as a seat by the Brahmans of ancient India. In the *Rig Veda* leathern bags to hold water have been mentioned, similar to those in India at the present day. Leathern bottles were also made. Straps and bands were manufactured of leather and hide." (T. N. Mukharji.).

In the *Ramayana* it is related that when the hero Rama was forced to leave his kingdom, Bharat, refusing to reign in his place, placed his step-brother's shoes on the vacant throne of Ayodhya and worshipped them daily.

"'Humble token,' answered Bharat, 'still I seek from Rama's hand,
Token of his love and kindness, token of his command,
From thy feet cast forth those sandals, they shall decorate the throne,
They shall nerve my heart to duty and shall safely guard thy own,
They shall to a loyal nation absent monarch's will proclaim,
Watch the frontiers of the empire and the people's homage claim!'
Rama gave the loosened sandals as his younger humbly prayed,
Bharat bowed to them in homage . . ."
(Romesh Dutt Translation.)

So far as native sandals (*chappals* or *chaplis*) are concerned, they are prized not so much for their lasting qualities but also for their ornamentation, and some years ago there was a flourishing industry in gold embroidered sandals at Lucknow. Besides, figures, artificial flowers and boxes of leather are also made —superbly ornamented toilet boxes for the ladies, and *hukka* stands and water bottles, often mounted with shiny brass fittings, for the men.

In Rajasthan, ornamented slippers and sword sheaths used to be made and still are to a limited extent, and special slippers for Mohammedans in certain parts of the North-Western province, now in Pakistan. Madhya Pradesh was also once famous for native footwear, as well as Mysore and certain districts of the west. In Gujarat, beautifully embroidered mats of leather are made, and Ahmadabad was once famous for her leather shields, made no more, for the days of the lance and the shield are past for ever.

Shoes and riding boots made of leather have always been in common use in India, as frequent references to them in ancient texts testify, as also do temple sculptures where figures are often shown suitably shod. But it cannot be denied that the true art of making sandals, slippers and shoes developed under the luxury-loving Muslim rulers, and as mentioned above, a great industry in gold-embroidered shoes flourished at Lucknow under the patronage of the rich Nawabs of Oudh. Today, highly ornamental sandals are no longer as popular and the art is in decline. Yet, the shoes or slippers for feminine feet, of a reddish leather with a curled front and low sides, lined with red or green velvet and ornamented with tinsel gold or silver embroidery, made at Banaras, Rampur, Lucknow, Agra, Delhi and Jaipur are of the finest and most artistic examples of leathercraft in India. Mention must also be made of the shoes and slippers made at Hyderabad embroidered with gilt copper. Bikaner still produces camel saddles, water bottles, embroidered bridles, and belts.

Referring to Delhi, J. L. Kipling wrote : "Nothing could be prettier or more dainty than some of the slippers made for native ladies' wear, embroidered with seed pearls, usually false, with spangles and every variety of gold and silver thread, and inlaid with red, black, or emerald green leather in decorative patterns. Gilded and silvered leather are also used. Sometimes gold and silver embroidery is worked on cloth over a basis of leather." This was written over fifty years ago, but still has a historical value.

Apart from the centres mentioned above, embroidered and otherwise ornamented native sandals were, and in many cases are still today, made at Patna, Cuttack, certain districts of Bengal, Jhansi, Ahmadabad, Poona, Hyderabad, Madras, Mysore, Tiruchirapally (Trichinopoly), Raichur and Salem. But nowadays Kanpur is the commercial centre of the Indian leather trade, especially for the manufacture of western types of shoes and boots, trunks and saddlery, made in factories equipped with the latest in machines. However, we are not concerned with such goods, but only with traditional leather-crafts of the country.

Richly ornamented and really beautiful belts, pencases, etc., come from certain districts of the Frontier region. The leather used in Quetta is generally of a dark red colour, ornamented in green and then embroidered with tiny circles between parallel lines. The embroidery, in a kind of chain-stitch, is mostly in yellow silk. In other parts of the North-West, the leather used is thick soft strips of sambar, decorated with green leather and embroidered in yellow and red wool in a coarse chain-stitch.

Water bottles and *hukka* bowls are also made in leather, often richly mounted with brass and silver and further ornamented with green leather. The leather used for the *hukka* bowls is sometimes smoked to harden it and then polished to a fine lustre. Besides these

articles, leather cigar-boxes, cigarette and cigar cases, dressing-cases, pen boxes, etc., are produced in fair quantities throughout the country. In the Hoshiarpur area, the use of black leather is common, generally ornamented in green or with appliqués of leathers of different colours.

Quaint indeed were the book-covers, boxes and cigar cases made at Bilaspur, ornamented with quills : "Black leather is first made into boxes and other forms, then decorated with circles or patterns of green or red leather, or leather covered with foil, fastened on in the manner of appliqué work, and then the whole sewn in designs in white, with thin strips of the tough and flexible quill of the peacock." Mention may also be made of the leather with a metallic gold or silvery finish made at Raichur, and the circular dish mats, made of thin leather, and hand-painted with figures of men and women, curiously grouped into the form of a horse or elephant — designs which have a mythological significance for the Hindus.

As stated above, Kanpur is the chief centre today for modern leather goods and saddlery which are not decorated in any way and hardly differ from the same articles made elsewhere in the world. But Bikaner and Jaipur were once noted for their ornamental saddles and trappings for use on camels, and certain regions of Bengal for saddles covered with velvet and beautifully embroidered in gold. "One of the most striking features of the goods thrown into this position is doubtless the manufactures of Indore," writes Sir George Watt. "These are made of green and magenta silk or cotton velvet, fastened on the top of leather by a multitude of small brass or sometimes gold nails arranged so as to elaborate a certain design." But he accords higher artistic merit to the embroidered leather sheets of Hyderabad in Sind, now in Pakistan, which "consist of *sambar* leather and have central medallions, borders and corner pieces done in appliqué with black, red or green leather, elaborately embroidered over the surface, in chain stitch and with silver and gold wire judiciously intermixed. The designs are bold and effective but the scheme of colour barbaric, viz., yellow field, green foliage and magenta flowers — the prevailing features."

Something not seen today is the embroidered leather work of Chanda in Madhya Pradesh, once the capital of the aboriginal Gond dynasty, leather work which has been called "the last relic of its past magnificence." The embroidery used to be done on a rich dark Indian red leather, in gold wire arranged between parallel lines and interspersed with green silk. The designs were mostly conventional and the articles made used as table covers or sheets. Painted table mats of leather also used to be made in certain districts of Madras, mostly with fantastic or mythological designs.

The leather bottles, generally meant for keeping oil, have already been mentioned. They were and are usually made of sheep or camel skin which is first softened and then stretched over a clay mould of the desired shape. Once set the clay is washed away. These bottles may be further ornamented with bits of paper pasted on the skin and varnished as used to be done in Lahore, or decorated with a paint made of fine brick dust, suitably coloured and varnished, as was common in Bikaner.

Rather novel in concept and appearance are the shields and boxes made of carved rhinoceros hide which used to be made during the last century at Ahmadabad, Baroda, Surat, and certain parts of Kutch. On the existant specimens the designs are enclosed in panels, elaborately and richly carved, with slightly raised and gilded lines between the panels. The designs commonly used in Ahmadabad were after the beautiful carved windows of Siddi Sayyid Mosque. Sometimes, the designs to be seen on old work are floral scrolls forming a broad continuous border, especially round the edges of shields.

It has been recorded that instead of being carved, the leather was sometimes so carefully cured as to be almost translucent. Shields of a large size and of such leather without the slightest blemish were naturally very expensive and so were often richly jewelled.

Indian book-binding in leather, especially the embossed and gilded variety, deserves a brief mention. In the past, the finest work was turned out at Alwar in Rajasthan, work of a quality that elevated it to the realm of true art. According to Sir George Watt, "There seems little doubt, however, that proficiency was attained at many localities, during the Mughal dynasty, since the beautiful books that have been handed down, with the greatest care, in the libraries of the nobles, display a skill and artistic feeling as superior to that attained by the Alwar workers of today."

The finest work used to be turned out by Karim Ahmed and his sons who were employed by the Chief of the Alwar State. It is believed that he came to Alwar from Delhi sometime about A.D. 1820, at the invitation of the third Chief of the state, Maharaja Banni Singh, in order to make a fine binding for a famous copy of the *Gulistan* of Sheikh Saadi, prepared by Agha Mirza of Delhi. T. H. Hendley writes in his *Ulwar and Its Art Treasures* :

"In the Ulwar work the ornament is somewhat after the old Grolier style, in which the colours are painted on the boards and are not inlaid. In most of the designs the pattern is produced by the use of brass blocks. The colours are then painted on with the brush. The Ulwar artist sometimes colours the whole of the ground, and at others only part of it, so as to produce very different effects by the use of the same blocks.

"The edges of (leaves of) his books are frequently painted with designs in colour ; for example, the *Gulistan* has a pretty border in coloured outlines. The outsides of this work are done in gold on a blue ground, the back is a painted gold pattern on a black ground, and the insides also have a different gold design on a blue base."

Sir George Watt has pointed out that in Ahmadabad, there was a considerable trade in embossing long strips of dark red and gold leather for use as book covers "for the narrow sale-books kept by the shopkeepers in Gujarat and Bombay." These were often quite beautiful, but they are no longer made due to lack of demand.

The designs and embellishments used on ancient Indian book-bindings are truly beautiful and beyond one's ability to describe. Though such rich bindings are produced no longer, a certain quality of the old art still remains on the blotters and book-covers made to suit today's requirements. But though the designs are still tolerably Indian and traditional, at present the technique employed is that of the West.

A word about Kashmir. Considerable quantities of leather goods are produced here and they are fairly in keeping with products of the other parts of the country. But there is nothing special about the Kashmir leather goods as might be expected from a region so rich in its artistic heritage. Actually, only utility articles of leather are produced, including suitcases, wallets, ladies' handbags, etc. The latter are charmingly coloured and are often even gaily embroidered.

Although produced in large numbers, Indian leather crafts lag far behind in artistic qualities and workmanship as compared to the products of the West. In the circumstances, few will agree with the statement, "As handtooled products, Indian leatherwork has a precision, clarity and plasticity that is hard to match anywhere else." (*Handicrafts of India,* All India Handicrafts Board, Government of India). We further read, "Leather workers use in addition to the usual hides and skin, crocodile and snake skin both of which are durable and fascinating. Crocodile skin makes for attractive brief cases, wallets, pouches and belts. Reptile skin is used for tobacco pouches, powder cases, wallets and handbags."

BASKETS AND MATS OF INDIA

Basketry is perhaps the most universal of all the crafts, practised throughout the world and in communities of all grades of social evolution, wherever the necessary raw materials for this indispensable craft are available. And in India, bamboo, cane, reeds, grasses and especially the *munj* (*Saccharum munja*), as well as the leaf of the cocoanut and date palm have been used from times immemorial. Among some of the other articles, apart from baskets, are the oval *petaras* of Bengal, boxes made of rattan cane and sometimes covered with leather and designed for keeping clothes and other domestic articles ; and the oblong *jhampis,* boxes made of finely sliced bamboo used for keeping valuable documents ; again, table mats, and table lamp shades are made today in Bengal, "picture" decorations for the walls, and models. In Monghyr, table mats used to be made of the *munj* grass, suitably decorated. In Jaipur, boxes also used to be made of the lightly-scented *khaskhas* grass (*Vetiveria zizanioides*).

T. N. Mukharji has drawn our attention to the fact that "bamboo baskets lined with cloth and decorated with lacquer and baskets, boxes, and fans, made of *Khaskhas* root and ornamented with lace and beetle wings are the specialities of Sawantwadi." Poona also used to turn out similar articles, but this craft is now almost if not quite dead.

Apart from the utilitarian baskets, mats of cane, grasses, palm or date leaf, etc., are made all over India. Mats are used as floor coverings in Indian homes, serving almost the same purpose as a carpet, and hence they are often dyed and further ornamented with silk or lace work.

Floor mats are commonly made in South India. Regarding them, Dr. G. Bidie has written that the finest kinds are made of the *Cyperus pongaris* and are left either uncoloured or decorated with two plain bands of red and black at each end. "They may be made so fine that a mat sufficient for a man to lie on can be rolled up and packed into the interior of a moderate sized walking stick." At other places, the mats are decorated with geometrical patterns, especially those made at Palghat. We are told that these mats are made on a crude type of loom, "the warp consisting of cords of common twine separated more or less according to the quality desired. The woof consists of strips of the split sedge, dyed or of the natural hue. The black colour is produced by iron, gall-nut powder, and the pods of the *Babul* (*Acacia arabica*). A red dye is got by boiling the split sedge in water with the wood of *Varthangi* (*Caesalpinia sappan*) and the leaves of Kasan (*Memecylon edule*). For yellow, which is not often used, the colouring ingredient is turmeric."

Considering the hot climate prevailing in India for many months of the year, it is not surprising that cheap fans are very generally made everywhere, the materials used being bamboo, palm leaf, the sweet scented *khaskhas* root, *munj* grass, date leaf, and such other plant products. These fans, of various sizes, may be plain or suitably decorated, and the better varieties may have handles made of ivory or lacquered or carved wood. Other materials used for the decoration in the more expensive fans are peacock feathers, gold lace, tinsel, gold and silver spangles, silk embroidery, etc. In the south, painted palm-leaf fans are made to a certain extent and they are often very pretty to look at if not quite aesthetically satisfying.

Fans of paper are also made everywhere but "they are furnished with ribs of bamboos radiating from the handle in imitation of the ribs of palm leaf, from which doubtless they were originally made. The surface of the fan is covered with some pigment so as to give a body to work on, and then the final pattern is laid on with gilt and brilliant colours, which give it somewhat the look of lacquer work. The decorations on one side consist of the eyes of the peacock feathers in their natural colours, and on the other of a floral pattern." It is rather interesting to learn from T. N. Mukharji that according to the ancient medical books of the Hindus "fans made of different materials possess different properties. Fans made of palm leaf, cane, cloth, or peacock feathers are said to correct irregularities in the three humours — heat, bile, and phlegm, and those made of bamboo to increase the secretions."

Baskets and mattings are made everywhere in Bengal from the flexible *latas* (creepers), *bans* (bamboo), *khagra* (reeds) and *hogla* (grasses) as well as of the date-palm and *tad* leaves (*khajurpata* and *talpata*). The old and therefore stronger shoots of the plants are always favoured.

The canes and bamboos are first split in two and then sub-divided to form fine strips which are used as the warp and the weft of the cane weaving. An old Bengali proverb says that so fine and delicate should these be that they "could be rubbed on the eye without hurting."

The strands made as described above are then steeped in the muddy waters of a pond, preferably one containing water-hyacinths, to further strengthen them, and then they may be dyed in different vegetable colours. To produce a fine shade of brown, the juice of the *gab* or *kusi* (the Wild Mangosteen, *Diospyros embryopteris*) fruit is commonly used. This juice is also used in Bengal to tan and dye fishing nets and lines, house fences, timber, and cotton.

The baskets made may be either woven or coiled, the former made up of warp and weft strands ; the warp strands are fixed while the weft ones cross and recross the warp as in textile weaving. There are many common types of these woven baskets.

In the chequer-work kind, the warp and weft strands are of equal thickness and width, each strand woven alternately over and under the other to form a chequered design when the warp is of one colour and the weft another. Ajit Mookherji says, "the bulk of the *Hogla* (*Typha elephantina*) matting is made in chequer-work, but at times the patterns run obliquely, giving them the appearance of diagonal weaving."

Another variety is the twill-work, in which the weft strands pass over and under two or more warp strands at a time, producing a diaper design. This may be worked together with the chequer type of weaving to produce infinite variations of design and colour. In Bengal, *Lakshmi-caskets* are produced with double "walls", cane inside and bamboo twill-work outside, covered with cloth of a rich red colour on which shells are sewn to form floral designs.

Heavy baskets or *jhuris* are in wicker-work, in which the warp strands are thicker and stiffer than those forming the weft. Only plain weaving is done, the weft strands alternately passing over and under those of the warp. This produces, due to the thicker and stiffer warp, a series of ridges on the outer surface.

In twined-work also, the warp strands are thicker and stiffer than those of the weft ; but the weft is used two or three at a time and the strands are half-twisted as in common twine. Thus Wrapped, Plain, and Diagonal designs are formed.

Coiled basketry is not woven. A foundation is made by coiling strong cane round a central core. It is then coiled round and round, the diameter of each coil widening as it progresses upwards. The coils are fixed to one another by means of bamboo splints, a method peculiar to Bengal. These coiled baskets may be of different sizes, from small delicate ones serving as jewel caskets to coarsely made large *dhamas* used for the storage of grain.

The better class baskets have a separate woven border which may be fixed to the main body of the basket by means of long strips of cane. "A widespread custom in Bengal is to give what Mason calls a 'kick' to the bottom of the basket, thus forming a concave inside." (Mookherji.)

Beautiful decorative basketry is also made in Bengal, with floral, geometrical, and figured designs produced by means of differently coloured strands as well as additional accessories like cowrie-shells, beads, etc. The craftsmanship of the Bengal basketry maker is best seen in the *petaras* (oval boxes), *jhampis* (caskets of an oblong shape), *kulas* (fans used for winnowing), *phul-sajis* (flower baskets), *mathals* (sun-hats), and *calunis* (sieves).

A considerable amount of mat-weaving is practised in Bengal, using cocoanut-palm and date-palm leaves, bamboo, grasses, reeds, and cane. The bamboo mats known as *darma* may also be used as walls of houses in East Bengal. The better class of mats are made either of the *sitalpati* grass (*Maranta dichotoma*), called cool-mats, or of *madur* grass (*Cyperus tegetum*). The fine mats called *masalandas* are chiefly made in the Midnapur district. The *madur* grass is steeped in water for at least twenty-four hours and then sliced to the required thickness. It is then dyed red. The *kusanas* are made of *kusa* grass (*Eragrostis cynosyroides*) and the excellent *sitalpati* of the *maranta* grass that grows wild in marshy places. These mats have a smoothness of texture and a gloss not seen in the inferior kinds. It is said that the best type of *sitalpati* mat is so smooth that a snake cannot move across it as it will afford no friction to the wriggling body of the reptile and without which it cannot make any progress. Whether this is true is doubtful, but these mats certainly are very cool. The stems of the *maranta* grass are split lengthwise into very fine sections and well scraped. The shiny parts remaining are made into thin and narrow strips which are woven into mats. They are often ornamented with chequerboard, spiral, diagonal, zig-zag, or leaf designs, though sometimes human and animal figures are also introduced. The figured *sitalpati* mats made in the districts of Faridpur and Sylhet are especially famous for their superb workmanship and excellence of design. In Sylhet, which is now in Pakistan, mats are also made which are decorated with beads and strips of ivory.

The mats of Midnapore in Bengal are also very famous, being chiefly noted for their classical mosaic-type designs and the perfect evenness of their weaving or plaiting.

The process of making the Midnapore mat has been described by H. B. Cockerell. The rushes of which the mats are made are exposed to the sun for at least three days if not more. Before use, they are soaked in water for about an hour and then split into thin strips, the width of the strips depending on the quality of the mat required. "If the border of the mat is to be coloured, the rushes are dipped into a red dye to the necessary depth. This process of manufacture consists in plaiting the rushes thus prepared on threads highly strung between two bamboos, a sley being used, as in weaving, for compressing them tightly together."

According to Pandit Natesa Sastu, plain but very fine mats are made at Pattamadai in the Tinnevelli district, the weft of *korai* grass and the warp of cotton or even silk threads of 80 to 140 count. "The surface of it is softer than silk. It can be folded like cloth, and carried in a man's fist, if rolled like a stick. However, he admits that "in the harmonious intermingling of Hindu colours and Hindu patterns of decoration, the Palghat mat alone stands uninvaded."

The mat-weavers of Pattamadai use chiefly quadruple twisted 100-count yarn as the warp. In other words, four hanks of the 100-count yarn is taken hold of at one end and twisted to produce a single thread of great strength. The twisting itself is done by means of the *charkha*, the rural spinning wheel. The warp is thus prepared by the men, but the actual weaving is carried out by the women who sit upon a wooden bench below which the warp threads are stretched. In front stands a bamboo tripod carrying the reed. Ex-

plaining the process, V. Natarajan writes : "A single grass (which has almost the thickness of a hair) is taken and dipped in a cup of water. One end of this wet grass is inserted in a hole of a long fine stick, which can be compared to a gigantic needle. With the help of this stick the grass is passed into the loom. Afterwards the stick is removed and the grass is held on both sides by both hands and slightly twisted to give uniform roundness and strength. Then the reed is pressed against it several times to keep it in position. A woman can weave about 6 inches of 100 count or about 3 inches of 140 count per day." (*The Hindu,* Madras.)

After every small bit of the mat has been woven, this portion is compressed to eliminate any unevenness between the rows of weaving. This may take anything from two to four hours and thus it takes the weaver nearly twelve days to finish a single 100-count mat, and upto twenty-two days for a 140-count one. It should be pointed out here that most of the mats made in India use coarse yarn and such can be turned out at the rate of two or three a day. This will give some comparative idea of the fineness of the Pattamadai products.

Once the mat has been completely woven, the edges are neatly trimmed and the cut ends secured with fine silk thread. It is next finished by placing it on a wooden plank and polishing the top surface with a very smooth stone. The best quality mats are superb specimens, weighing only about twelve or thirteen ounces and are so pliable that they can be easily folded without suffering the slightest damage.

The *korai* grass grows wild on river banks and on the sides of pools, streams and water channels. Though this grass is also cultivated in certain regions of Tiruchirapally, Tanjore and Arcot, it is believed that only the wild variety produces the finest mats. The grass is collected twice a year, during September-October and again in February-March. The grass stalks are split into halves, carefully dried and sorted according to size. The semi-dried grass is further dried in the sun for about one month during which it is regularly turned till it achieves a fine uniform mellow golden colour, and stored till required. The dried grass is now placed in the waters of a canal or stream for about seven days to make it soft, when it is ready for further splitting. The pith is removed from the stalks with a double-edge knife. The tough outer layer is also removed, and the remaining split into fine strands for the weft varying in size from 1/10th to 1/20th of an inch. The splits are next dried before dyeing. Nowadays, synthetic dyes are freely used, but in olden times, a dye made from the *Sapangu kattai* only was used. The dried bark and leaves were finely powdered and this powder sprinkled over the split *korai* grass, which would then be folded and immersed in salt water. The vessel containing the salt water and the grass was allowed to stand in the sun for about ten days till the latter was found to be uniformly dyed. At present, the use of synthetic dyes gives the mat-weavers raw materials of many colours, making possible the production of a large variety of new designs.

The delightful and richly coloured coir floor coverings of that Land of Coir — Malabar — deserve a brief reference. Coir is the thick fibrous coat protecting the cluster of cocoanuts on the tree. Rich in the cocoanut palm, the coir industry is an important one in Malabar, and at present almost six hundred thousand people — men and women and even children — earn their livelihood from it.

The coir fibre is spun into yarn and woven into beautiful floor coverings and mats of various sizes, qualities and designs. The decorative motif may be inlaid or stencilled on the mat, or the design may be woven in as in textiles. The better quality mats, coir itself and some other coir products are widely exported to the U.K., Europe, the U.S.A., Australia, Canada, Sweden, Denmark, Italy, and certain other countries of the world. It has been said that the advantages of the tough golden coir are many. "It is one of the best materials known throughout the world for its durability, sound-deadening and soil and damp resisting qualities. Moreover, coir has the capacity of giving cool comfort in torrid heat and of providing warmth when the mercury falls, thus retaining a refreshing crispness under all conditions."

CRAFT-WORK IN SHELLS AND MOTHER-OF-PEARL

Work in shells is a minor craft in India, the common conch shell mostly being turned into charms, bracelets, etc., as well as brooches, cameos, and napkin rings. Though of minor importance as an industrial art, the use of shell bracelets is an ancient practice. These are called *sankhas*. The shell amulets and charms are generally elaborately carved, sometimes further coloured with lac and ornamented with gold foil or beads. "There is considerable variety in the patterns of these *Sankha* bracelets, from the rude broad flat ring, to the thin delicate annulet, rounded, or with notched or beaded edges, carved with tigers' heads, enriched with ornamental incising, and illuminated by touches of tinsel, lac-colour, gilding, etc.", wrote Mr. Locke in his list of articles sent to the Vienna Universal Exhibition of 1873.

As common with all crafts in India, the *sankharis* use only crude and rather primitive implements, the chief of which is a saw with which the shell is cut to form the bracelets, the worker's vice being his two feet, in the traditional manner of the East.

"What strikes the onlooker is the seemingly unnecessary large size and unwieldy form of the saw employed," says Sir George Watt. "The ease with which this is handled, however, shows that its weight and shape may represent a saving of power. At all events the shells held by the feet as in a vice are cleverly cut to the required shape by these expert workers."

The designs carved are not many, the most popular being a chain of fish forms or doves. Another common design is a series of shells carved on the perimeter of the bracelet or armlet, or a cleverly designed chain, with the links perforated. Sometimes, a further decoration is carried out and the rim of the bracelet notched or small diamond shapes engraved in the centre. If the articles are further enriched with lac, the colours most commonly employed are different shades of red and green. The lac is fused and rubbed into the engraved lines of the designs, the excess being removed later and the surface finally finished and polished.

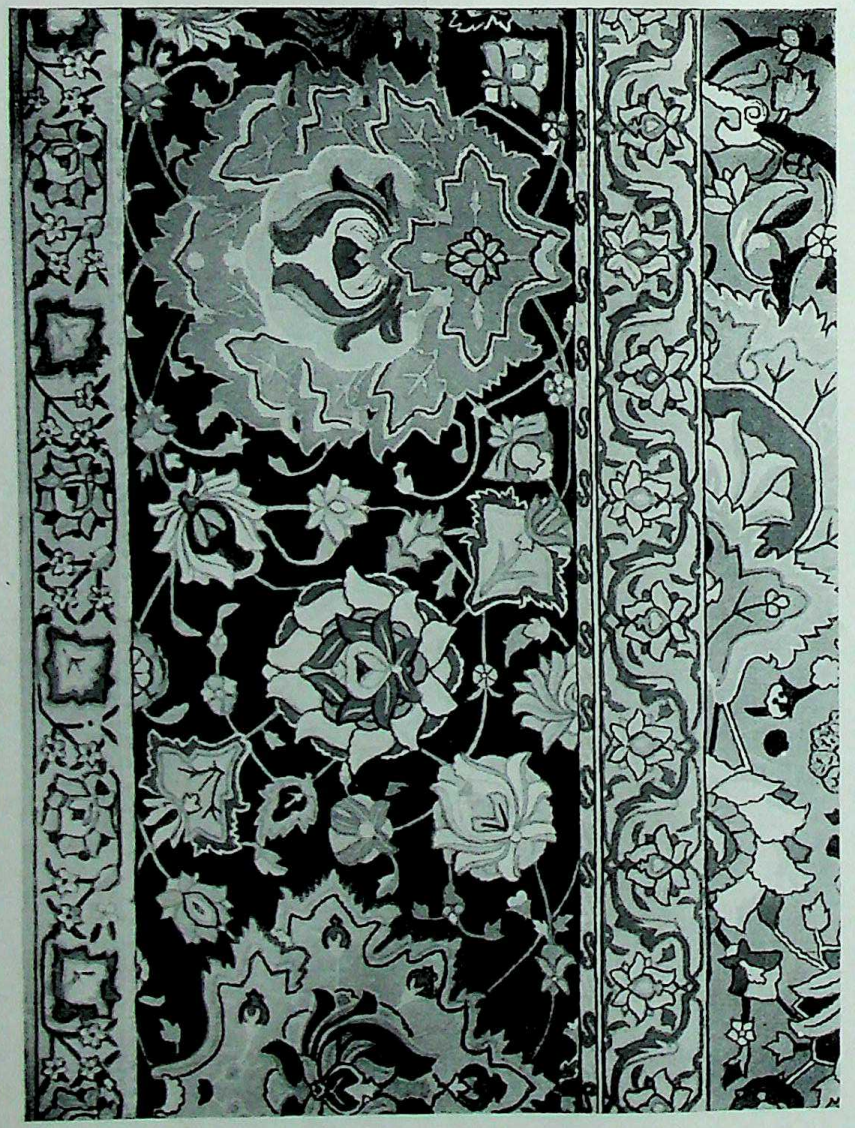
In olden days, shell bracelets were universally worn by the Hindus of Bengal, but this is no longer so. T. N. Mukharji wrote in 1888 : "The wearing of shell-bracelets was considered a religious obligation by the Hindus of Bengal, and even now a set is always presented to the bride by her father on the occasion of her marriage. On such occasions ivory bangles are substituted for shell bracelets in Upper India. Dacca has, however, come forward to supply the modern taste by turning out delicate bracelets and bangles of different patterns."

This may not be quite true today, but shell-work and shell carving used to be quite an art-industry in Dacca and many other parts of East Bengal. Tavernier who visited Dacca in 1666, recorded that "to Bhutan, Assam, and Siam went coral, amber, and tortoise-shell; to Nepal . . . and shell bracelets." The conch shell is cut into bracelets, bangles, napkin rings, armlets, lockets and charms, brooches, etc.. As elsewhere, the cut shell bracelets may be further engraved and the incised lines or the sunk areas of the carving filled with coloured lacs.

In 1886, T. H. Hendley reported the use in Jaipur of aquamarine shells for carving into ornaments. Tortoise-shell is widely used in Vizagapatam work. A beautiful jewel casket exhibited at an International Exhibition in Calcutta towards the end of the last century, deserves a brief description : "The interior of the box was carved with ivory fret-work, rivalling lace in the delicacy of the tracery and elaborate nature of the patterns, which embraced floral and mythological figures. The fret-work was laid on a background of tortoise-shell, and the ivory, instead of being etched as usual, was carved out to the minutest detail with great skill and fidelity." Tortoise-shell is also used for making small ornaments in some parts of Gujarat and round about Bombay.

Fancy boxes, covered on the outside with cowrie and other small shells and lined inside with coloured cloth, are made in Bengal and in the south. Cowrie shells used to be widely employed in the making of *galubans* or ornamental trappings for hanging round the necks of camels and other animals in Rajasthan. These broad ribbons of coarse cloth were decorated with the cowrie shells and sometimes with the addition of small metal bosses or tiny mirrors and large tassels of coloured wool.

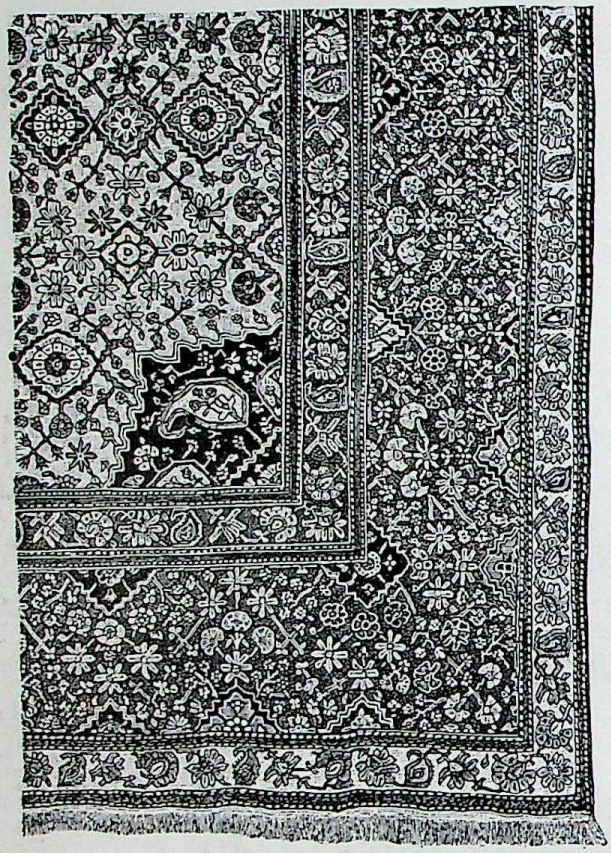
Nowadays, articles like lamp shades, ash-trays, pin trays, small dishes, quaint animal and human figures, etc., are made either from large shells or small ones of different shapes and sizes joined together. But these creations, however attractive they may be, are more reminiscent of the European seaside resorts than of our country's cultural heritage. The craft is not traditional and has nothing "Indian" about it.



Woollen pile carpet from Jaipur.

Woollen pile carpet from Vellore.

(From *The Journal of Indian Art and Industry*)



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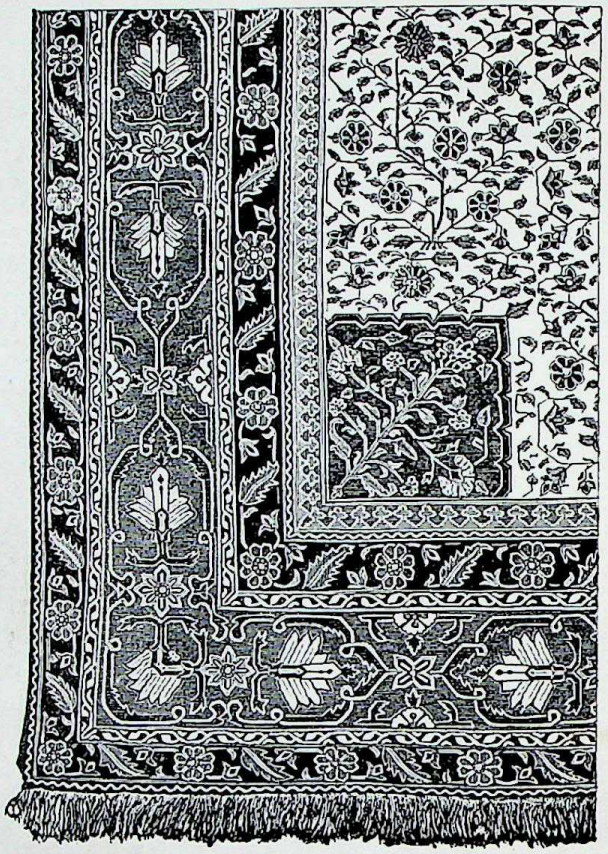

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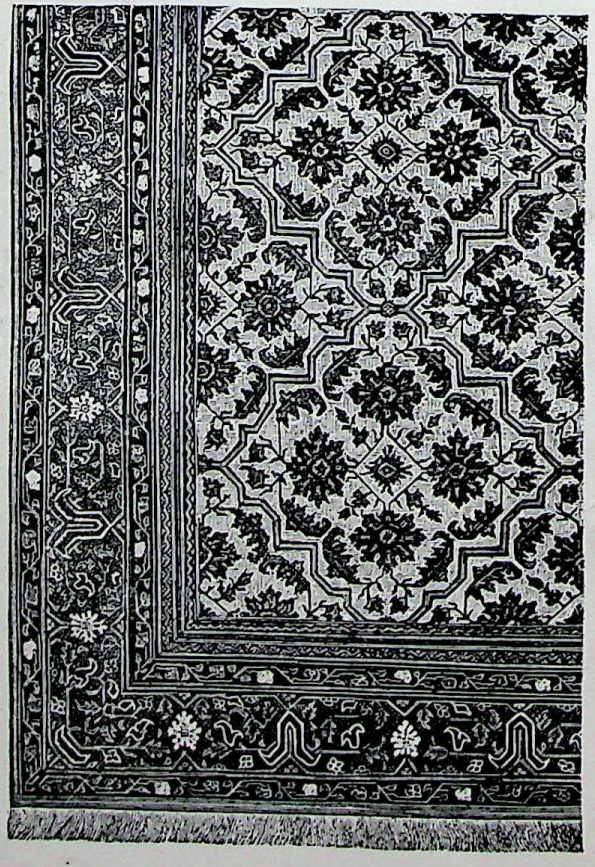

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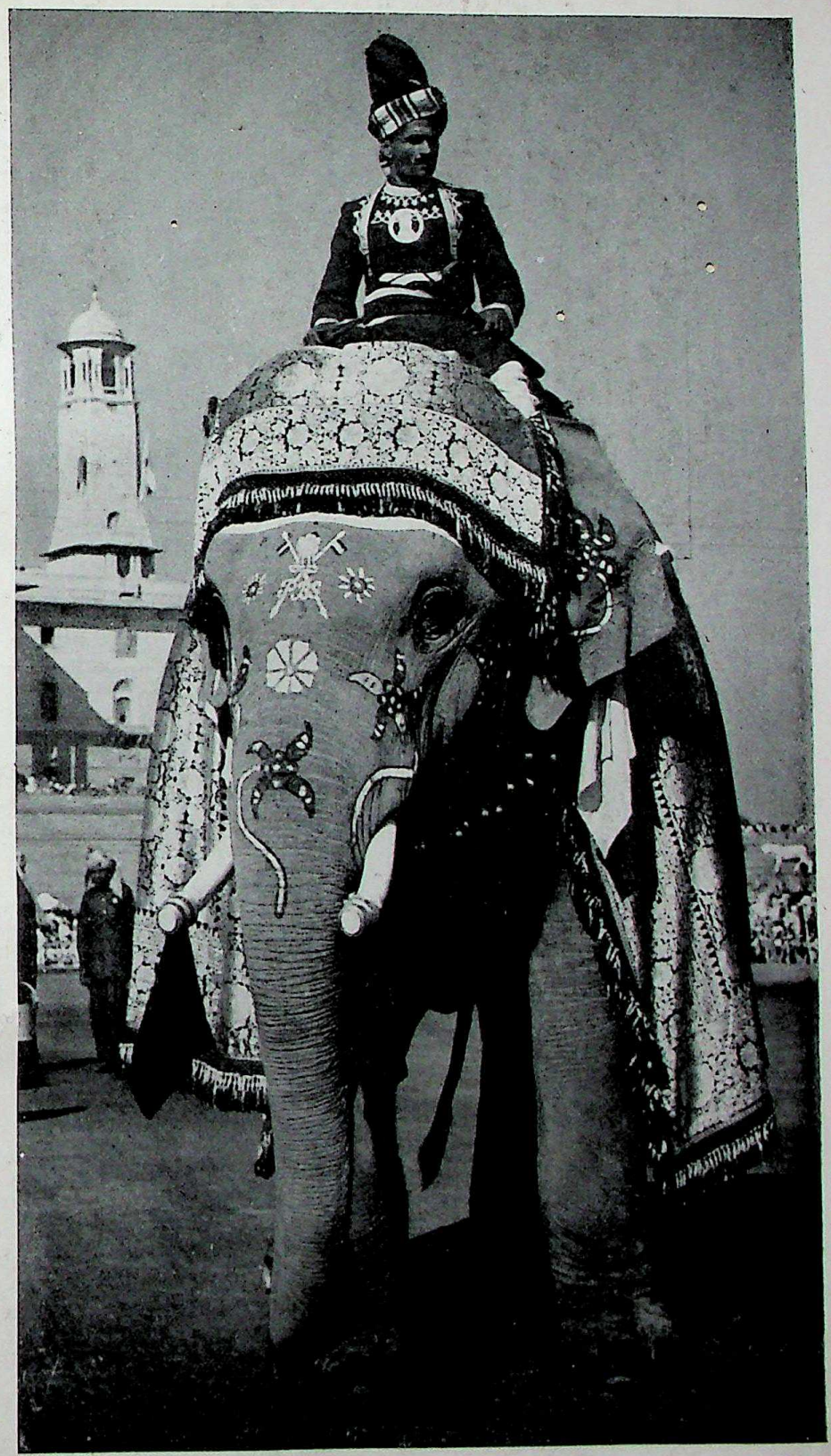
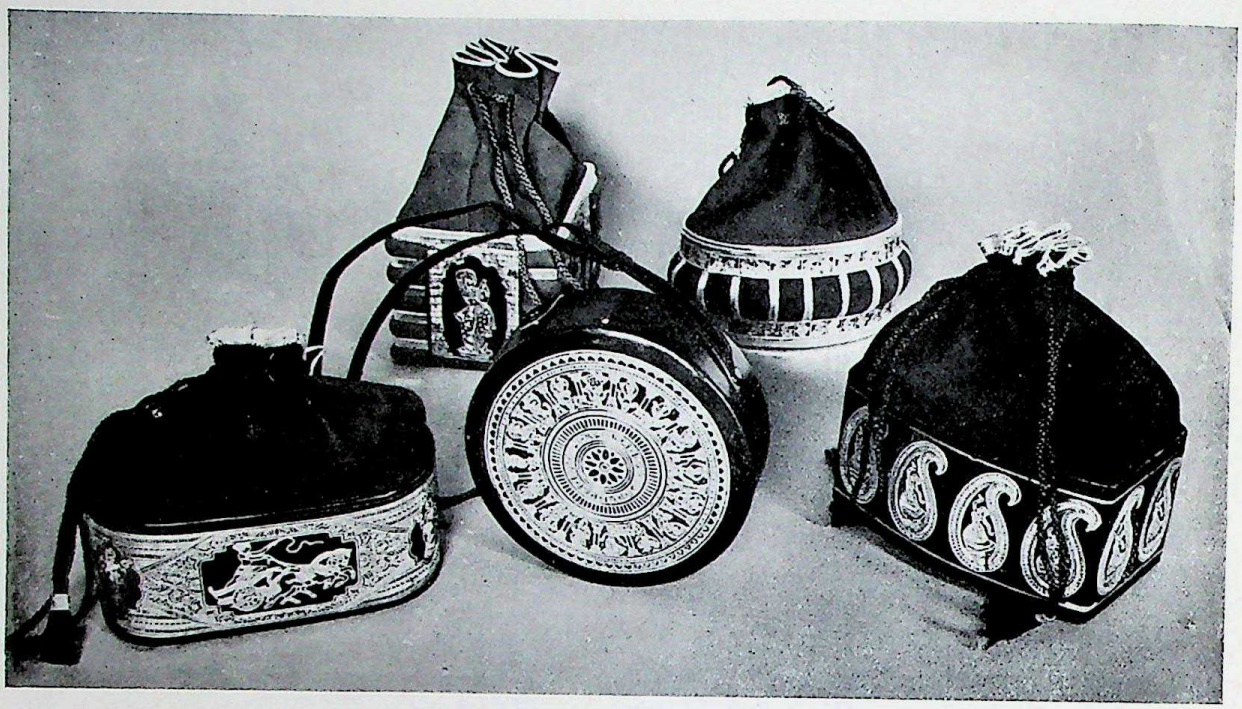
Corner designs of (1) Kashmir Carpet, (2) Warangal Silk Carpet, (3) Malabar Carpet, (4) Coromandel Carpet.
(From *The Journal of Indian Art and Industry*)

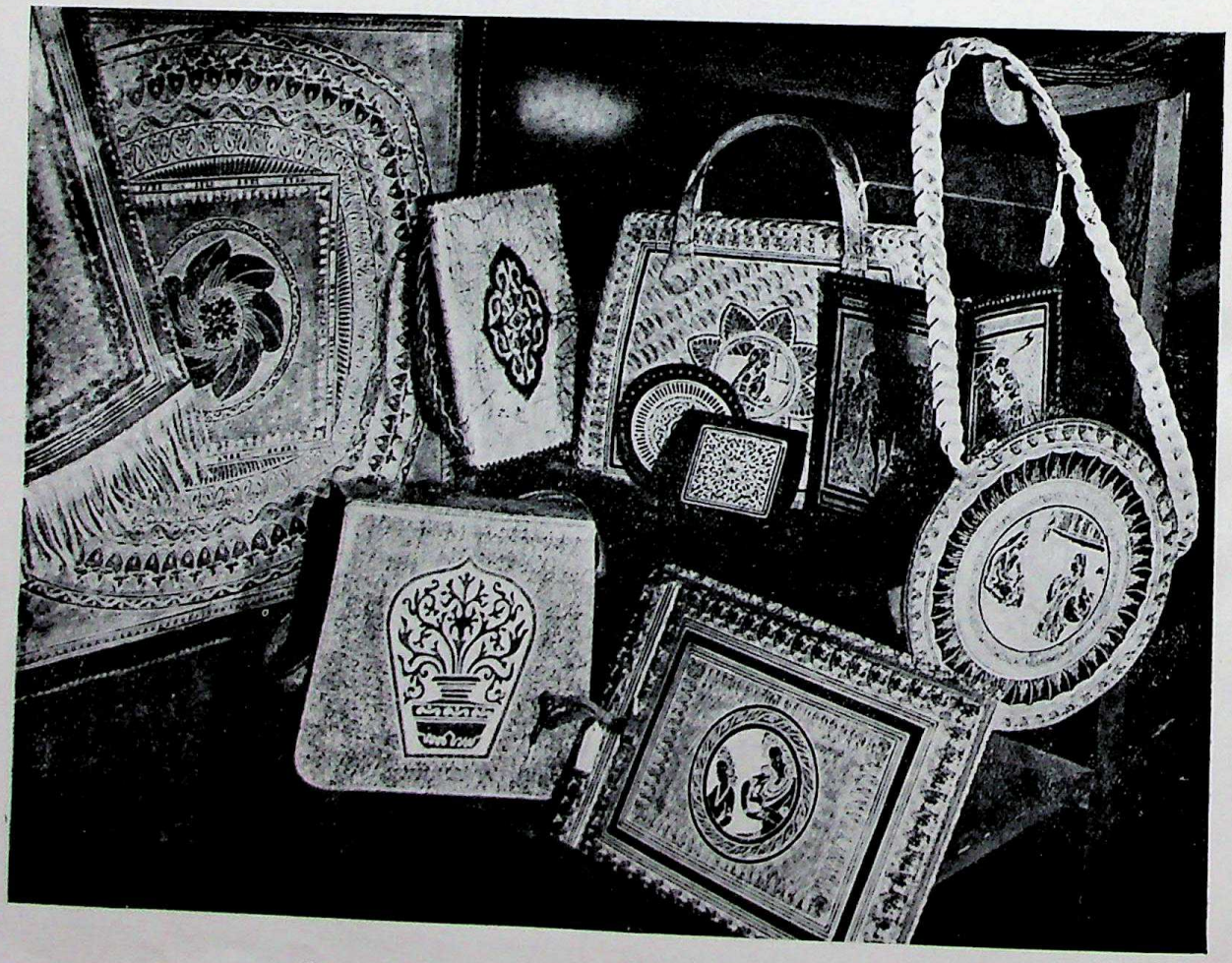


A State elephant in full regalia. Note the gold embroidered trappings.
(*Photo :* Darshan Lall).

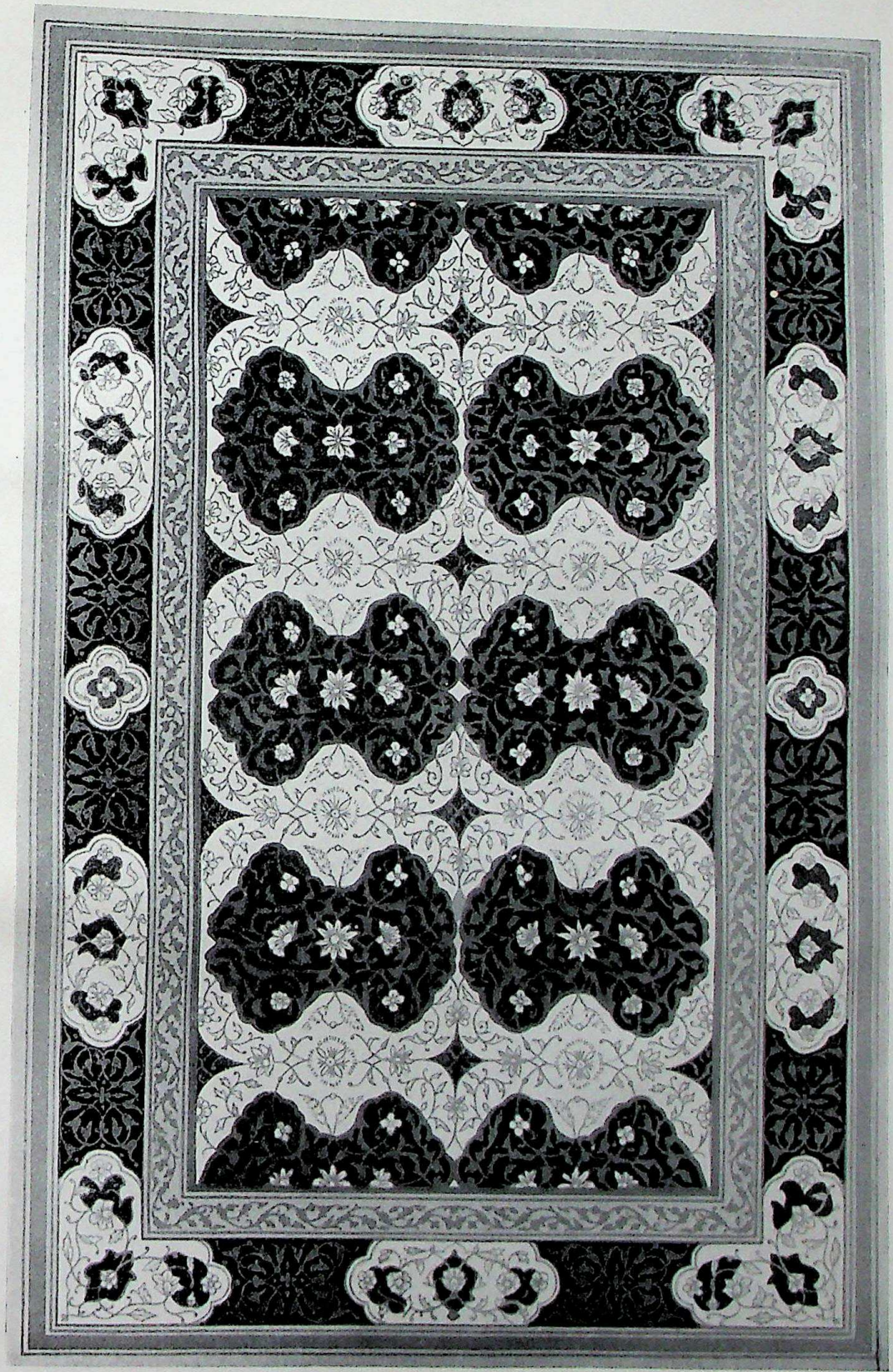
Embroidered fan — the insignia of a chief.



Fine leather bags with gold and coloured embossing in the Santiniketan styles and designs.
(*Photo :* A. S. Vaswani)

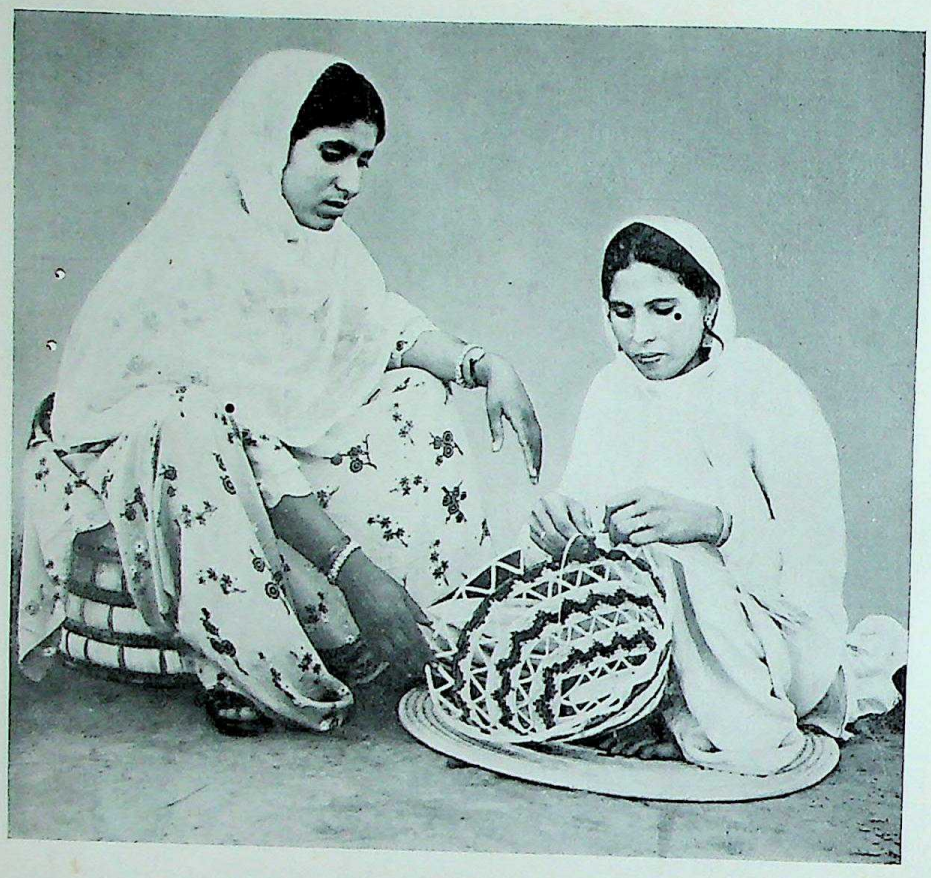


Some more bags and purses, also in the Santiniketan style.
(*By Courtesy of the Home Publicity Department, Government of West Bengal*)



Gold embossed and coloured book cover of Volume IV of the "Memorials of the Jeypore Exhibition." There are rich deeply sunk areas with flowers in gold, embossed on a deep lapis lazuli ground, the whole on a ground-work of golden-yellow and with borders of scrolls alternating on black and gold.

(From *The Journal of Indian Art and Industry*)



Left: Female raffia-workers of Faridabad.

(*Photo :* A. S. Vaswani)

Bottom: Rural basket-makers of Gujarat.

(*Photo :* A. K. Syed)

WHAT AND WHERE

This chapter will probably be most useful to the tourist who is in this country only for a short time and wishes to purchase Indian handicrafts as souvenirs of his visit or articles of daily use, to remind him of the East. The first part of the chapter deals with the common handicrafts and industrial arts of a few important centres, while the later part lists the places where different handicrafts are commonly practised.

AGRA. The chief articles of manufacture in Agra and its surroundings are embroidery in gold and silver, soapstone carvings and articles, imitations of ancient inlay work in marble, and carpets. Agra is justly famous for its stone-craft and sculpture, and many different articles in soapstone and marble can be had here, as well as innumerable replicas of India's greatest monument to undying love — the Taj Mahal. Here you will find boxes of all kinds, cigarette boxes and powder boxes, card cases and trinket cases, in marble or alabaster, inlaid plates, marble coasters and ash trays. This is also the place for miniature paintings although they cannot be classified among India's handicrafts but only among her arts.

AHMEDABAD. This city has been celebrated for its handicrafts from olden days, its goldsmiths and jewellers especially for their archaic designs. It is also known justly for its copper and brass workers, its delicate metal screens and *pandans,* its carvers in *shisham*. Carving in stone and ivory lacquer work, gold and silver lace and tinsel ornaments are also a speciality.

AMRITSAR. This city is famous for its carpets, silk fabrics and Pashmina textiles — made from the fine wool of a breed of goats found in the Himalayas. The Pashmina shawls are well worth buying. Embroidered goods are also common. Ivory carving is practised and copper repoussé dishes are made here.

BANARAS. This city is famous for its ornamental brassware, small images and idols in brass and other metals. This is the traditional home of the *kinkhabs* or brocades of India. And, of course, the Banarasi saris are world famous.

BANGALORE. This is the "Garden City of South India", with its colourful shops, especially silk shops. Here are beautiful saris with gold-encrusted flower borders in South Indian designs. Wicker and basket work is also a speciality as is sandalwood carving — boxes, figures, trays, jewel caskets, screens, etc.

BOMBAY. Rightly, the "Gateway of India," here will be found everything Indian and Western. It is famed for its jewellery and precious gems, especially pearls for which it is a world market. It is said that Bombay's shops offer a tantalizing array of jewellery that's enough to bankrupt a woman's budget — however great! Here will be found cloth of every kind, from all parts of the country — silks and satins, cottons and brocades, the richest embroidery. Among the many things one can buy here are bags and purses in a wide variety, carved boxes, ivory work, leather goods. In short, there is nothing one can want that will not be found in Bombay.

CALCUTTA. This is India's largest city, but not as cosmopolitan as Bombay. Among many other things, you will find silver repoussé articles, gauzy cloths in gold and silver, jewellery, precious stones, beautiful rugs, hand-spun and hand-woven textiles, dinner mats and tray cloths, *kanthas,* pottery, ivory goods, leather articles.

DARJEELING. Nestling among the mighty Himalayas, here you will be among the happy and colourful Nepalese, Lepchas, Tibetans. There is not much you can buy here except cheap furs and the typical Darjeeling work including boxes, salvers, and wall plaques with metal encrustations and cheap stones. "An inexpensive souvenir is a tiny Buddha of gilt, inlaid with coral and turquoise." Embroidered articles will also be seen — shawls, jackets and coverlets.

DELHI. The capital of India, it is famous for its typical Indian style jewellery, silversmiths and embroiderers. This is also the place for *attars* or Indian perfumes, pure flower extracts, handmade silver vases and bowls, plates and tea sets, ornamental jewel boxes made of brass, silks and silk embroideries, fine homespuns, Indian sandals, and fine ivory carvings.

HYDERABAD. Lacquer work is a speciality of Hyderabad and nearby Nirmal. Not only are toys made, painted with brilliant lacquers, but also trays, coasters, furniture, ash trays, small dishes, fruit dishes, etc., and even heels for evening sandals. Bidri work is also another speciality of the place and one will find buttons, bangles, cigarette cases, trays, compacts, bowls, paper-knives, ash trays, small dishes, etc. Gold filigree work is also commonly available. This is the place of the *himru,* a peculiar silk-and-cotton brocade with striped, floral or spotted designs on a satiny background.

JAIPUR. The enamelled jewellery of this "Pink City" is world famous and rightly so. And you will also find enamelled brass boxes, plates, ash trays, and many other articles of daily use. Jaipur embroidery is excellent and the tie-and-dye scarves are worth buying. Jaipur ivories are beautiful in detail.

KASHMIR. This is the home of handicrafts : Kashmir shawls of pashmina wool, the delightful papier maché articles, beautifully hand-painted, engraved and repoussé silverware, carved wooden articles like boxes, trays, screens, rugs, carpets, and many other such things. It is said that the Kashmiri "Craftsmen seem to excel in all the arts. It's as if being born in this beautiful Vale, they're inspired with the deft artistry and imagination to turn any material into a work of art."

LUCKNOW. The chief art products are clay models and silverwork as well as copper and brass vessels. Bidri work articles are also made here.

MADRAS. This is the place famous for hand-embroidered linens and organdy, table mats and coasters, hand-woven table linen, laces and embroideries of all kinds. Jute and coir carpets are made here, as also brass articles, hand-made dolls, and traditional South Indian jewellery.

MURSHIDABAD. This place is famous for embroideries and carved ivory articles.

MYSORE. The craftsmen of Mysore are world famous for skilled workmanship in sandal-wood and inlaid ivory work — ivory-handled knives, screens, chests, stools, low tables, ivory trays, book-ends, and boxes of all kinds.

TANJORE. The place is famous for its silk fabrics, repoussé work, jewellery, articles in copper, and the famous *Swami* work.

TIRUCHIRAPALLI (TRICHINOPOLY). The filigree work of the place is excellent. But the chief industries are tobacco growing and cigar making.

For the following information we are indebted to *Handicrafts of India*, published by the All-India Handicrafts Board, Government of India. As stated in this book, "The descriptive particulars do not necessarily mean that the objects are manufactured at each of the several centres mentioned against them. Wherever possible, the centres of manufacture of particular objects have been indicated." It will be understood that only a representative selection of articles made can be mentioned here.

CARPETS AND DRUGGETS

Places : Mirzapur, Agra, Allahabad, in Uttar Pradesh ; Amritsar, Hoshiarpur, Batala, in the Punjab ; Srinagar in Kashmir ; Eluru, Masulipatam, Rajahmundry, in Andhra State ; Wallajapet, Ambur, Salem, in Madras State ; Bangalore in Mysore ; Warangal, Aurangabad, Hyderabad City ; Baroda and Bijapur, in Bombay State ; Jaipur in Rajasthan.

Articles : The carpets are made in different sizes and designs. The darker the ground colour, the lower the quality and the price.

SHAWLS, NAMDAS AND GABBAS

Places : Shawls, *namdas* and *gabbas* (prayer mats) are specialities of Kashmir, but *namdas* and *gabbas* are also made at Jaipur, Jodhpur, Hoshangabad and Saugar. Shawls are also manufactured in Amritsar, Ludhiana, Gurdaspur and Nurpur in the Punjab.

Articles : The usual sizes of shawls are from $3' \times 6'$ to $9' \times 12'$. The yarn used for the embroidery of *namdas* is hand-spun or mill-spun and dyed with dyes which are fast to washing and sunlight. *Gabbas* are made of blankets which are washed, milled and dyed in various kinds of dyes. There are three kinds : embroidered, appliqué, and embroidered and appliqué. In the appliqué type of *gabbas,* pieces of the dyed blanket are stitched together and interspaced with hand embroidery. Chain-stitch rugs are made in many designs, both in light and deep colours. The design is worked all over in woollen threads on hessian. A lining of strong gunny cloth is also given for added protection.

WOOD CARVING AND INLAID ARTICLES

Places : Aligarh, Bareilly, Farrukhabad, Lucknow, Bijnor (Nagina), Bulandshahr, Mathura, Mainpuri, in Uttar Pradesh ; Ahmadabad, Baroda, in Bombay State ; Bhuj in Kutch ; Amritsar, Rahon, Hoshiarpur, Jullundar, Ludhiana, in the Punjab ; Koriddya (Birbhum), Dainhet, in West Bengal ; Sagar, Mysore City ; Bhavnagar ; Bikaner, Chitor, in Rajasthan ; Tirupatti in Andhra ; Trichur and Trivandrum in Kerala ; Mercara in Coorg ; Madurai and Tanjore, in Madras State ; Nagpur ; Puri, Sonepur, Mayurbhanj, in Orissa ; Srinagar in Kashmir.

Articles : Architectural carved woodwork with elaborate and masterly designs : door frames, lintels, shafts, etc. Gujarat, West Bengal and Andhra are famous for folk type of wood carving. Decorated and lacquered furniture like bedsteads (*charpais*), low settees (*chawkis*), centre tables, with rich ivory, silver and gold inlay. Wooden articles, plain or lacquered, like boxes, caskets, plates, fans, trays, book-shelves ; rose-wood articles are produced in Travancore and Cochin, Mysore and Bombay State. The latter two are also famous for sandal-wood carving and articles.

IVORY AND BONE ARTICLES

Places : Murshidabad in West Bengal ; Mysore City and Bangalore ; Trivandrum and Kottayam ; Old Delhi ; Jaipur, Ajmer, Bikaner, Jodhpur, in Rajasthan ; Rewa ; Ratlam, Alipur, Dhar ; Patna, Dumraon, Darbhanga, in Bihar ; Cuttack and Puri, in Orissa ; Agartala ; Kumpta, North Kanara, Surat, in Bombay State ; Amritsar, Panipat, Hoshiarpur, in the Punjab ; Patiala ; Imphal in Manipur ; Barpeta in Assam.

Articles: Table ornaments, decorative figures, animals in various sizes, Hindu gods and goddesses. At Trivandrum and Murshidabad, figures of Christ on the Cross, Madonna, etc., are made, as well as copies of famous Greek sculptures, and

animal figures (monkeys, deer, elephants, horses, tortoises, lions, etc.). Such figures are mounted on rose-wood or *shisham* pedestals. Book-makers, paper cutters, brush backs, buttons, boxes, caskets, cigarette holders, sword hilts, combs ; chessmen in ivory and wooden chess-boards inlaid with ivory, mats woven of ivory threads, ivory inlaid centre tables with legs carved in imitation of elephant trunks. The last are a speciality of the ivory carvers of the Punjab.

HORN ARTICLES

Places: Cuttack and Parlakimidi in Orissa ; Monghyr in Bihar ; Hooghly and Serampore in West Bengal ; Jaipur in Rajasthan : Honavar, Belgaum, Karwar, in Bombay State ; Vishakhapatam in Andhra State ; Sagar ; Trivandrum and surrounding places and Kottayam in Kerala.

Articles : Many kinds of combs, cigarette cases, pen-holders, walking stick handles, brush backs, jewellery cases, flower vases, figurines, Nandi (the sacred bull) supporting a flat tray with a cobra rising near it with expanded hood — a traditional article, bird and animal figures, ornamental tea-cups, buttons, round boxes for toilet requisites, etc.

LAC AND LACQUERED ARTICLES

Places : Agra, Banaras, Fatehpur, Lucknow, Mirzapur, Amroha, Saharanpur, in Uttar Pradesh ; Shivpur in Madhya Pradesh ; Cachar in Assam ; Bhuj in Kutch ; Baroda, Savantwadi, Pen, Rajkot, in Bombay State ; Murshidabad, Santiniketan, Lohada, Gaorikrishnagar, in West Bengal ; Bikaner, Indragarh, Jaipur, Jodhpur, Marwar, Bundi, Kotah, Tonk, Alwar, in Rajasthan ; Rewa ; Mysore City, Bangalore, Chennapatnam ; Imphal in Manipur ; Shahpur, Ferozepore, Hoshiarpur, in the Punjab ; Kalahasti, Kakinada, Nandyal, Nakavaram, in Andhra State ; Podanur, Salem, Madurai Chingleput, in Madras State ; Patna and Ranchi in Bihar ; Kamaraddi, Raichur, Hyderabad City.

Articles : Lacquered clay dolls and lacquered wooden toys (Balasore, Savantwadi, Srinagar), turned wooden articles, coloured with lac (Chennapatnam and Hoshiarpur), furniture, bedsteads, screens, low tables, bangles, *atardans,* plates, caskets, boxes, cups, trays, settees, etc.

ENAMELLED AND LACQUERED METALWARE

Places for Enamelled Work : Delhi ; Srinagar in Kashmir ; Bhuj in Kutch ; Ratlam ; Kangra in the Punjab ; Chamba ; Jaipur, Jodhpur, Jhalawar, Pratapgarh, in Rajasthan ; Banaras, Lucknow, Rampur, in Uttar Pradesh.

Places for Lacquered Metalwork : Moradabad in Uttar Pradesh ; Jaipur in Rajasthan ; Srinagar in Kashmir.

Articles : Cups, flower vases, *attardans,* water pots, jars, hukka bowls, jugs, wine cups, boxes, caskets, enamelled jewellery, bangles, ear-rings, necklaces, brooches.

Paper cutters, ash trays, tea trays, flower vases, jars, lamp stands, cigarette cases and boxes, dinner gongs, bells, brass stools, powder boxes, table tops, decanters, dolls and toys, ice crackers, statuettes.

BIDRI AND OTHER ENCRUSTED METALWARE

Places : Bidar and Hyderabad City ; Tanjore, Kozhikode, Tiruchirapalli, in Madras State ; Jaipur, Jodhpur, Alwar, Tonk, in Rajasthan ; Purnea in Bihar ; Bareilly and Banaras, in Uttar Pradesh ; Trivandrum.

Articles : Swords, shields, sword-hilts, daggers, ash trays, tea and dinner trays and service, plates, *surahis, lotas,* hukka bowls, nut-crackers, boxes, bangles, knife handles, table lamps, candle stands, cigarette cases and boxes, flower vases, *pandans,* powder and other toilet boxes, pin cushions, photo frames, sweet dishes, fruit dishes, trinket boxes, etc.

FILIGREE WORK

Places : Cuttack in Orissa ; Srinagar in Kashmir ; Karimnagar in the Deccan ; Tiruchirapally in Madras State ; Murshidabad and Calcutta in West Bengal ; Jhansi in Uttar Pradesh ; Agartala in Tripura ; Kotah in Rajasthan ; Trivandrum in Kerala State.

Articles : Ear-rings, rings, brooches, bangles, necklaces, different kinds of jewellery, plates, ash trays, boxes, cigarette cases and boxes, *attardans, pandans,* scent bottles, tea trays, spoons, lamp stands, etc.

PAPIER MACHE WORK

Places : Srinagar in Kashmir ; Agra, Muzaffarnagar, Lucknow, in Uttar Pradesh ; Gwalior.

Articles : Trays, bowls, powder and other boxes, cigarette boxes, ash trays, lamp stands, matchbox covers, fruit and sweet dishes, etc. The decorative patterns are of different types : Shawl, Rose, Gold Arabesque, White and Gold, Yarkand, Handkerchief, Modern.

TOYS AND DOLLS

Places : Kondapalli, Tirupatti, Etikoppaka, in Andhra State ; Gauripur in Assam ; Bhopal ; Bombay. Ahmadabad, Patan, Kaira, Poona, Nasik, Pen, Belgaum, in Bombay State ; Delhi ; Hyderabad City and Nirmal ; Imphal in Manipur ; Gwalior ; Sheopur, Ujjain ; Madras City, Tanjore, Palghat, Madurai, in Madras State ; Bangalore, Chennapatnam, Ramnagar ; Puri and Cuttack in Orissa ; Amritsar, Rupar, Hoshiarpur, in the Punjab ; Trichur ; Bareilly, Bulandshahr, Lucknow, Banaras, Allahabad, in Uttar Pradesh ; Calcutta, Krishnagar, Santiniketan, Jainagar, in West Bengal ; Srinagar in Kashmir.

Articles : The dolls and toys of today may be divided into four types : (1) Miniature models of human beings and animals, the best examples being the clay dolls of Krishnagar and the wooden dolls of Kondapalli ; these centres produce dolls noted for realism and naive humour ; (2) Anthropomorphic representations of gods and goddesses, such as Ganesh, Lakshmi, Siva, Parvati, Krishna and Radha, Rama, Durga, Balarama, Jagannath, etc. (3) Toys for children having no religious significance but with some educative value, like clay carts, whistles in the form of birds or animals, etc. (4) Wall plaques for interior decoration.

BASKET WORK

Places : Basket work is not restricted to any one place in the country.

Articles : Boxes, fans, baskets, trays, waste-paper baskets, baskets for flowers, bags, baskets for keeping clothes, caskets for jewellery, and many other articles of common and domestic use.

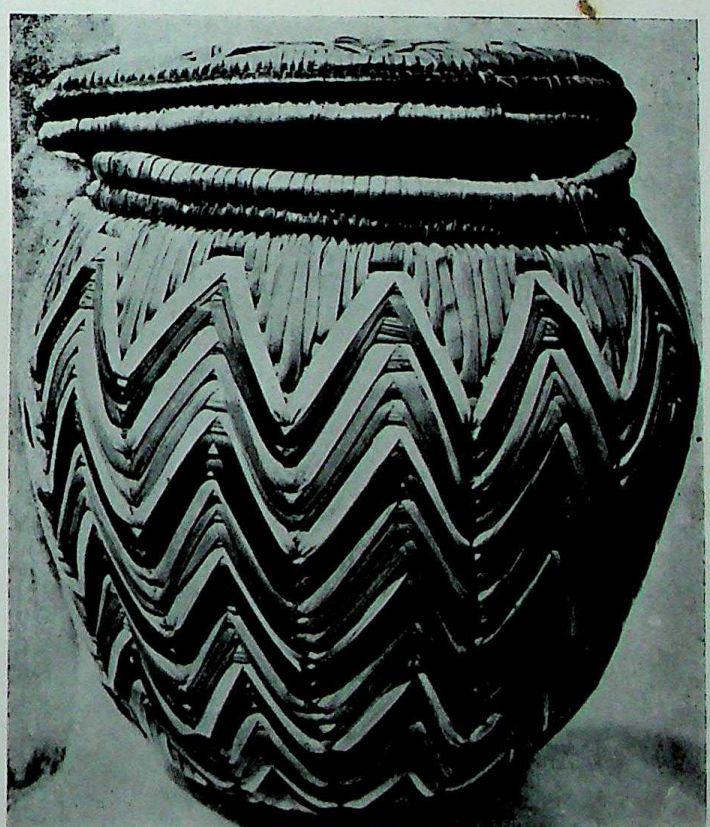
POTTERY AND CERAMIC WARES

Places : Gudur in Andhra State ; Bombay, Patan, Khanapur, in Bombay State ; Delhi ; Gwalior ; Nagpur, Gondia, Jubbulpore ; Bangalore, Bellary, Ramanagaram ; Mangalore ; Karigiri ; Manamadurai, in Madras State ; Patiala and Karnaul ; Srinagar in Kashmir ; Nohar in Rajasthan ; Sonepat in the Punjab ; Kundara ; Azamgarh ; Lucknow, Chunar, Banaras, Khurja, in Uttar Pradesh ; Calcutta, Krishnagar, Santipur, Sitarampur, in West Bengal.

Articles : Cups, *surahis,* water pots of different shapes and sizes, jars for storing grain and other articles, glazed "martbans" for preserves and pickles, decorative pottery like flower vases, pottery figures, cups and saucers, dinner plates, etc.

A group of boxes made of raffia, from Delhi.

Table lamp with a shade made of reeds.



A pot-shaped raffia basket.

(*Photos :* A. S. Vaswani)

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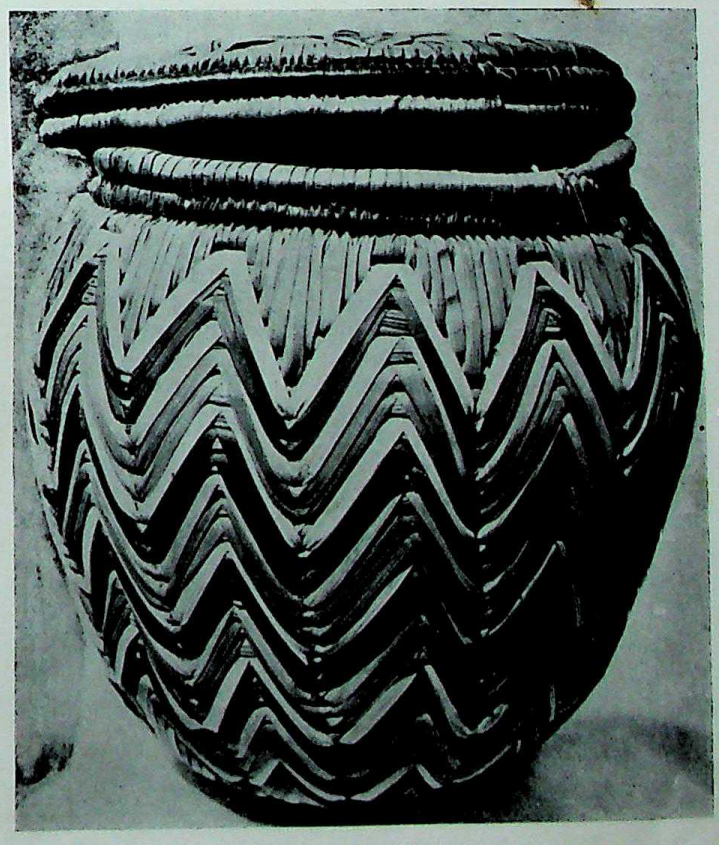

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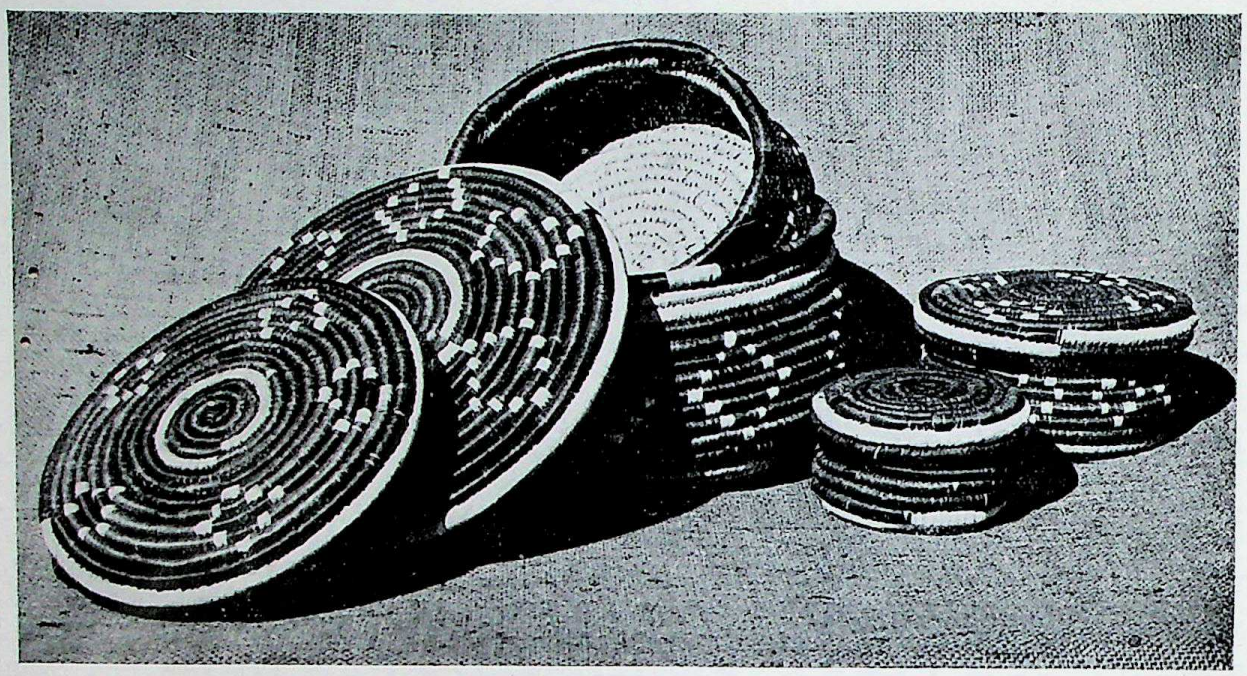
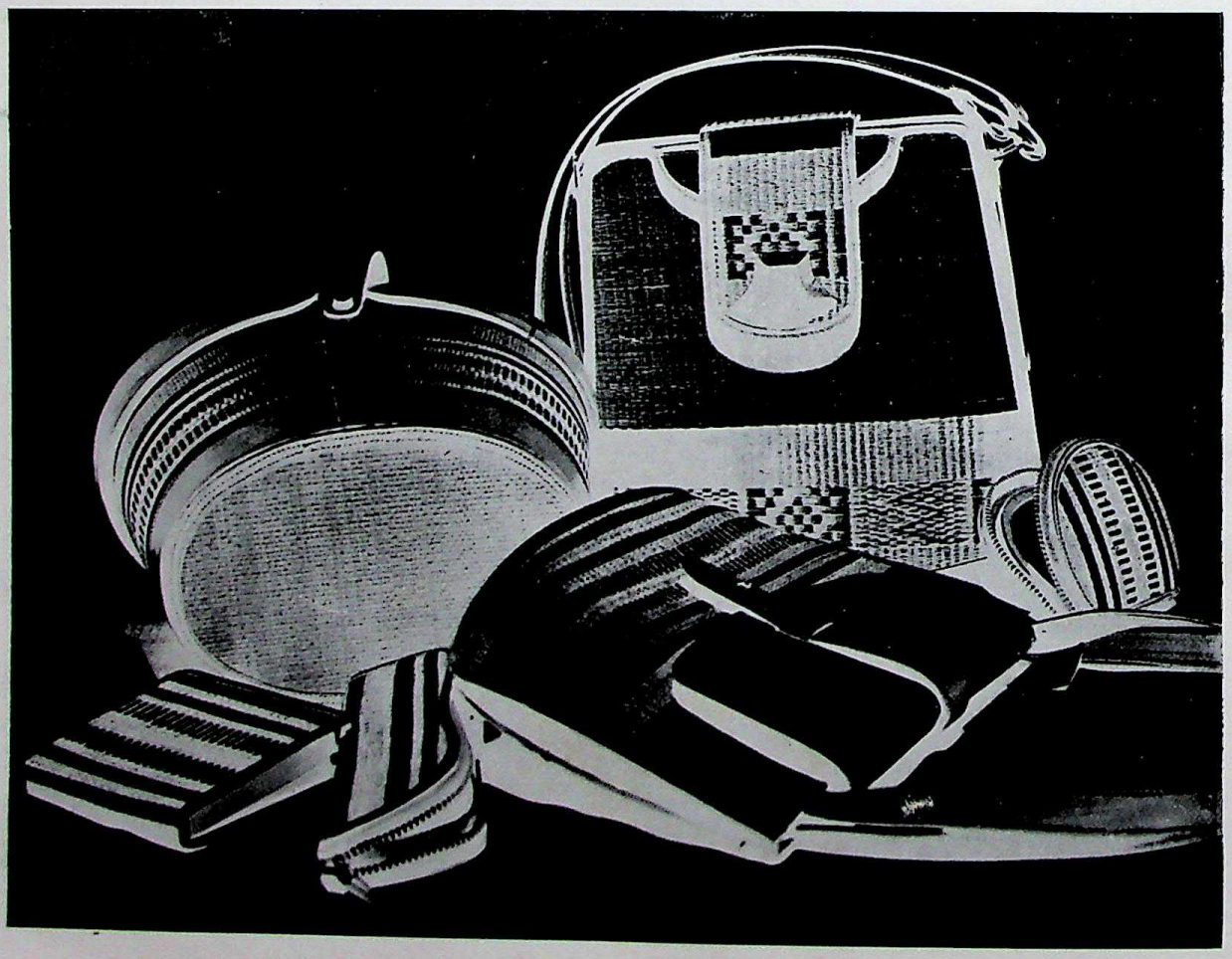
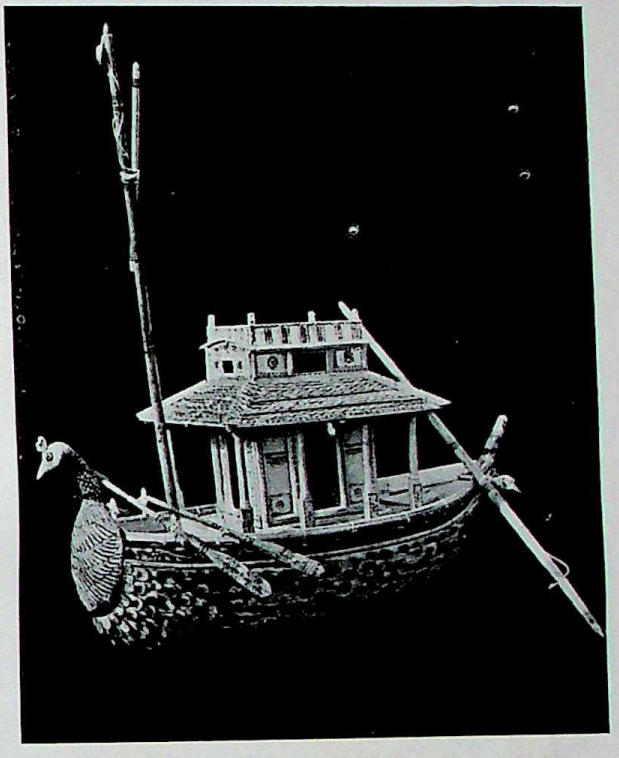
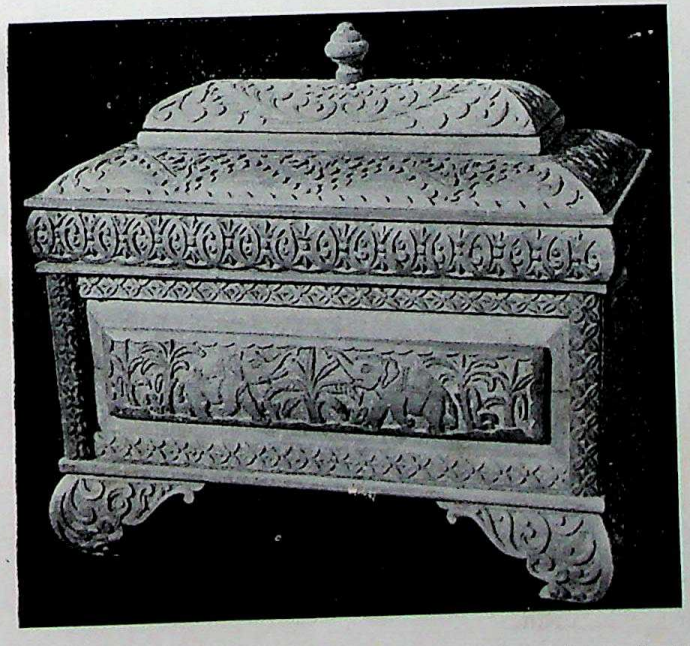


Raffia baskets from Faridabad.
(*Photo :* A. S. Vaswani)

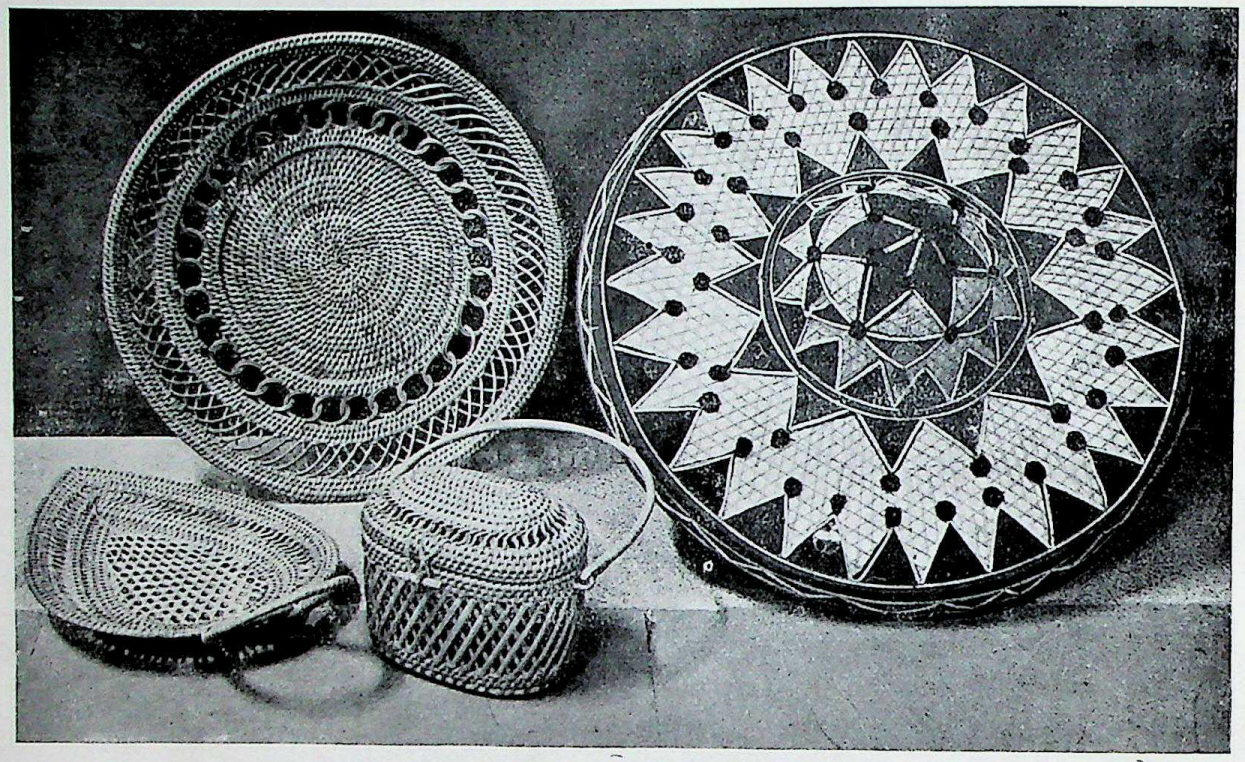


Purses and bags of woven korai grass from Pattamadai, Tinnevelly District.
(*Photo :* V. Kesava Sarma)



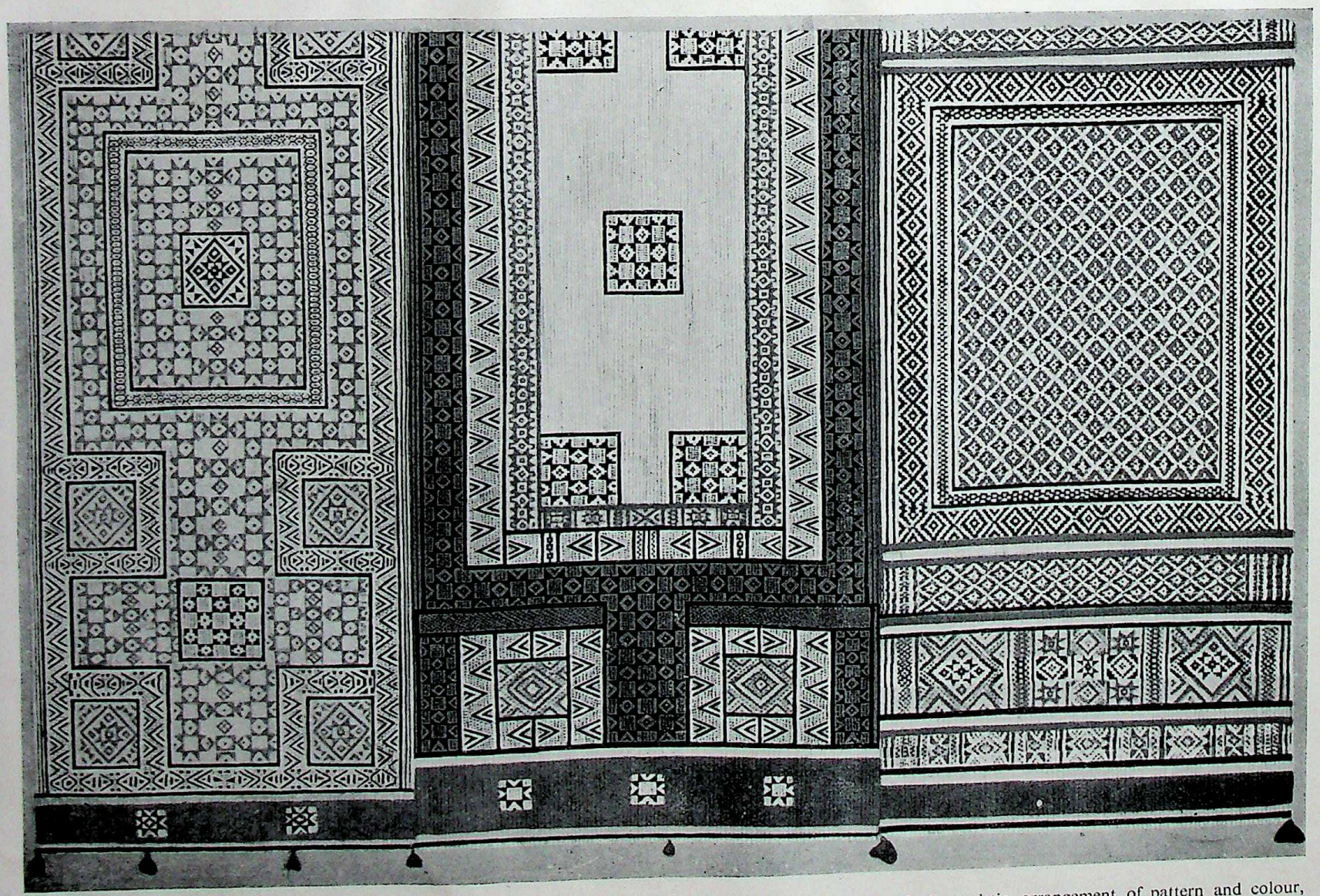


Two screens, a casket and a toy boat in bamboo work from West Bengal.
(By Courtesy of Home Publicity Department, Government of West Bengal).



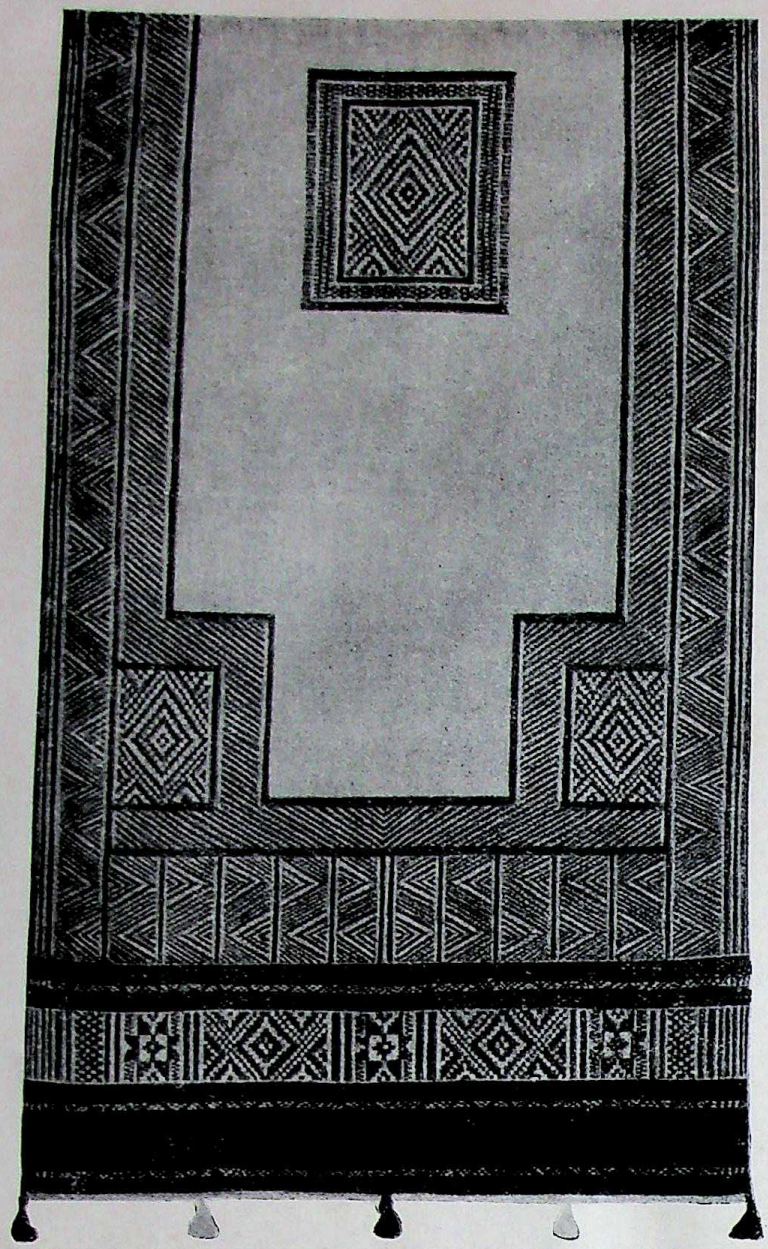
Assamese "Sunhat" (right) and three other examples of Assamese cane work.

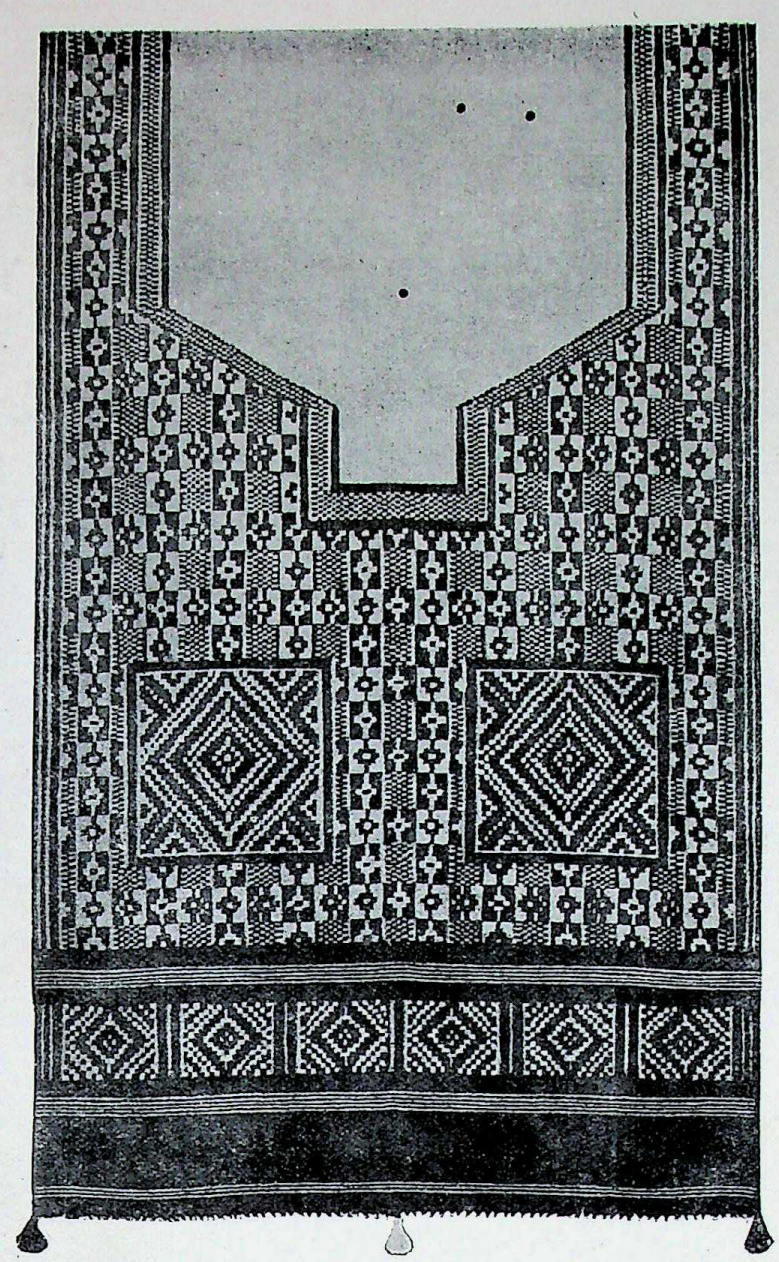
Five baskets made of raffia, from Faridabad.
(*Photos :* A. S. Vaswani)



Three specimens of the famous Midnapore rush mats from Bengal in charming mosaic patterns. "As regards the artistic arrangement of pattern and colour, nothing remains to be desired." (Waring).

(From *Masterpieces of Industrial Art and Sculpture, by* J. B. Waring)

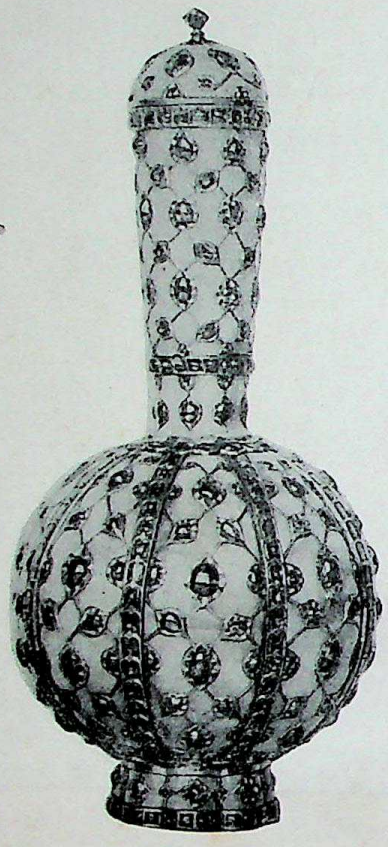




Woven coir coloured mats from Palghat, Malabar district, Kerala State. It is said, "In the harmonious intermingling of Hindu colours and Hindu patterns of decoration, the Palghat mat stands unrivalled."

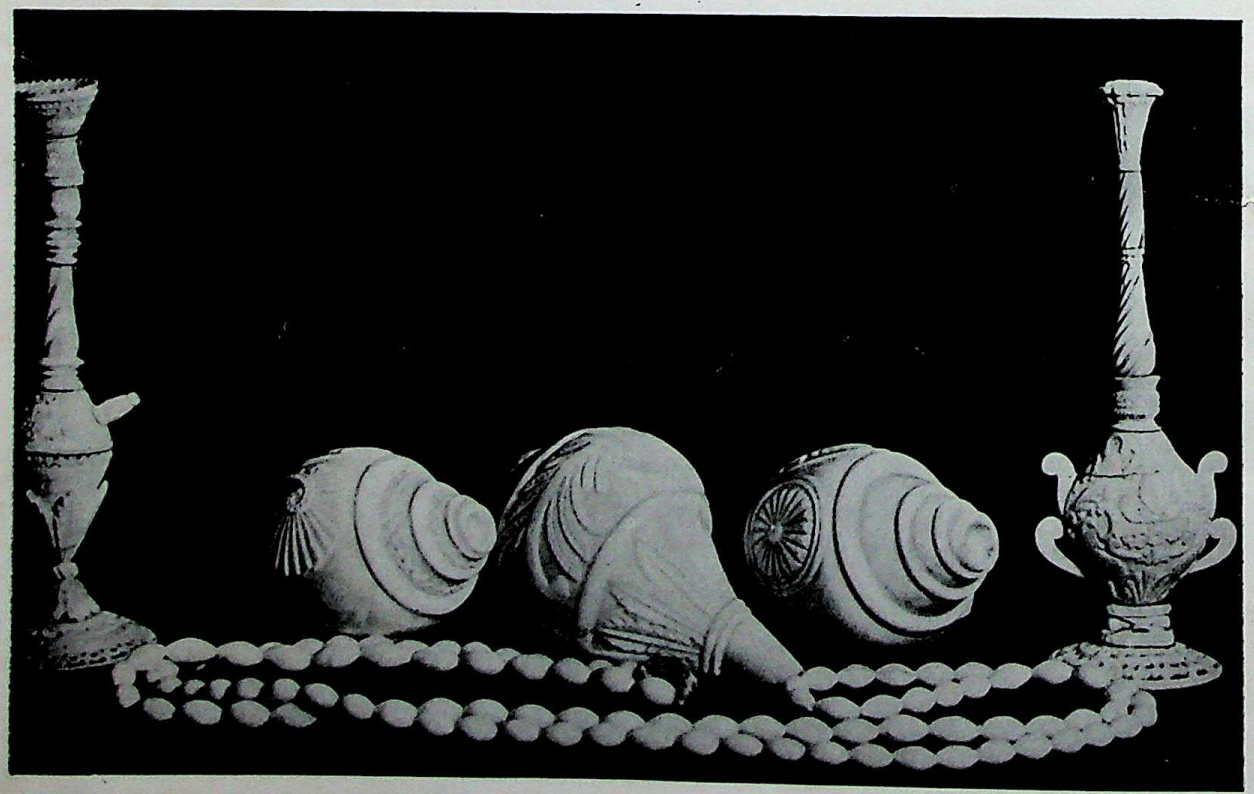
(From *The Journal of Indian Art and Industry*)

Charming figures made of shells and attractively painted. A modern craft.
(*Photos :* T. R. Babu)



Jewelled jade vase, formerly belonging to Lord Clive, in a network of gold, set with rubies and other precious stones. It is in the form of the *serai* or Indian water bottle. The article was probably meant for the storage of *attar*, the pure and concentrated essence of flowers used on ceremonial occasions.

(From *The Journal of Indian Art and Industry*)



Articles made out of conch shells in West Bengal.
(*By Courtesy of Home Publicity Dept., Government of West Bengal*)

APPENDIX

THE HANDICRAFTS OF ANDHRA PRADESH

By R. V. Rao, M.A., Ph.D.

Joint Director, Industries and Commerce Department, Andhra Pradesh.

The Filigree Industry

Karinagar district has long been noted for its fine filigree work of superior quality showing exceedingly delicate workmanship of local goldsmiths. Today it is a rare handicraft which only a few master-craftsmen and goldsmiths can accomplish. They work with finest silver thread and evolve unique and extremely delicate designs with meshed wires. About 150 artisans are engaged in this industry. The tools used in this industry are simple. The types of articles manufactured include ash trays, bangles, betel boxes, brooches, buttons, caskets, cigarette cases, flower vases, medals, paper cutters, photo frames, etc. To organise the industry on co-operative lines, the Department has drawn up a scheme costing Rs. 40,600.

Bidri Ware

The Bidriware Industry dates back to the Bahmani dynasty under whose patronage it flourished. Its cultural and artistic inheritance was derived from the famous schools of Persia. It has, therefore, a common ancestry with the older art, practised in Arabia and Persia, of inlaying gold and silver on steel or copper. However, instead of steel or copper, its basic material is an alloy of zinc and copper with small proportions of other non-ferrous metals of a dull leaden colour. The alloy never rusts or corrodes.

Originally the articles normally made were basins, water goblets, books, candle sticks, spice and cosmetic boxes, dishes and flower vases. Vessels to hold water were in special demand due to the belief that this metal imparted certain medicinal and curative properties to the water. Today a large variety of other articles such as cigar and cigarette boxes, ash trays, vases, cuff links, and fruit bowls are also made.

The designs are generally taken from the historical fort at Bidar and the world famous frescoes in the Ajanta Caves. Lately a number of semi-modern designs have also been adopted.

The workmanship is really marvellous. Referring to Bidriware, Professor Speight observed, "Bidriware is indeed a product of craftsmanship worthy to rank alongside the carved wooden work of Mysore and Kashmir, the metal work of Madras and Benares, the carved ivory of Travancore and the lamps and sacrificial vessels of Nepal."

The Ivory and Horn Industry

Ivory carving is another important handicraft. Articles produced in this line include (1) Lamp-stands, (2) Ivory Jewellery, (3) Images of Gods and Goddesses, (4) Ivory combs, (5) Ivory fretwork, (6) Powder boxes, (7) Cigar and cigarette cases, (8) Match cases, (9) Paper cutters, (10) Studs and links and other ornamental articles.

Reports received from the local and the international exhibitions reveal that these articles have been appreciated all over the world and are found to be in increasing demand.

Ivory and Horn Industry of Visakhapatnam. Visakhapatnam has been famous for its fine ivory work. Fancy articles like ivory caskets, photo frames, ladies' work boxes, visiting card cases, etc., are made here. It is stated that Mr. Fane and the then Collector, introduced the industry between 1858 and 1862. Efforts are now being made to organise the industry on co-operative lines.

Wooden Toys

Toys are as old as the human race. The type and quality of toys used depend on physical environment, socio-economic traditions, economic life, and nature of material available for manufacture of the toys. The last fifty years can be called the golden age of toys, for it was during this period that the child has come into his own in this adult-dominated world of ours. Educationists of the modern era like Froebel and Montessori for the first time brought the nature of needs of the children in their proper perspective, and emphasized the value of the games and play fittings and equipment for the development of the faculty of thinking and remembering. Since then, the home and the school nurseries, play centres and toy shops of the relatively more advanced countries of the world, have been flooded with a large variety of toys. The full impact of this movement has yet to be felt in our homes and schools. Modern toys are made of wood, cloth, light metals, paper pulp, rubber or celluloid. They are made to suit the needs of the children and the main purpose of play material is to help the child's physical, mental and emotional development. They are varied to suit the requirements of children in different age groups. While some toys enable the children to discover the objective world around them, other toys call for activity and effort in their manipulation. Some toys stimulate the imagination of the children, e.g., modes and customs of different countries and ages, animals and birds. Toys also help the children to attain adult skills by imitation of adult activities, e.g., house-keeping in the doll's houses. There are also toys of invention, construction, and creation. There are also toys which give pleasure by the ingenuity of their working. They are welcome as occasional guests in children's toyland. Toys should be such that the children can use them freely for recreating the scenes of imaginative adult skill.

Toys are made in different places in Andhra Pradesh ; some of them give an illuminative glimpse into the working of minds and imagination of the artisans. We have graceful dolls which depict the common life of people, models of animals in their natural habitats and the like.

Nirmal Toy Industry. Toy making is an important handicraft of Adilabad district and it has been carried on at Nirmal for generations. The toys are made of very light Burgu and Punki wood. The adhesive material used is prepared by soaking tamarind seed, drying and grinding it together with the seed coat and then heating it with water to the consistency of glue. The Nirmal toys comprise a wide range of chess sets, playing cards, and models of animals, birds, vegetables and fruits.

This adoption of Nirmal work for the production of utility and decorative articles is another achievement in the progress of this industry. Very attractive articles are placed on the market, such as trays, screens, lamp-stands, cigar and cigarette boxes, ladies' shoe-heels, luncheon sets, candle-stands, trinket boxes, and furniture. A special feature of the Nirmal work apart from the exquisite and superb designs is the good effect created by the use of herbal juice which does not tarnish with time. (This juice produces a kind of gold paint.—R.J.M.)

Kondapalli Toy Industry. Toys of Kondapalli (Krishna district) are also made of "Tella Ponuku" wood capable of being shaped to any form. The articles produced include birds, occupational toys and mythological figures. The wood is available locally. The industry is carried on by a particular caste of people known as "Arya Kshatriyas" who migrated from Rajasthan and about 15 families are now engaged in this industry. A co-operative society was started as early as 1936. The demand for these toys is so great that the co-operative society and the artisans at Kondapalli find themselves unable to produce and supply them, the main reasons being want of enough capital and the required number of artisans. Kondapalli being a historic place attracts tourists and the toys produced here have a ready market.

Tirupathi (Tiruchanur) Toy Industry. The Tirupathi toy industry has long been famous for the traditional wooden toys it produces. The traditional designs consist of Gods and Goddesses, human beings and animals. Due to their traditional beauty, they are generally in great demand, especially during festive occasions at Tirupathi. The manufactured products have become the monopoly of a few dealers and middlemen and the artisans concerned derive only a nominal price for their products. These toys are in demand in Canada and U.S.A.

Lacquered Toys of Etikoppaka. Lacquer work is done at Etikoppaka of Sarvasiddhi Taluka of Visakhapatnam district. This industry was once in a flourishing condition but it is now in a declining stage. The requirement of the toy industry here is soft, light and good grained wood having good colour receptivity which is available locally. The articles produced here are similar to those produced in Chennapatna in Mysore State. The toys made consist of trays, bulls, models of railway engines, gramophones, fruits, and other amusing articles useful for children.

Printed Textiles

One of the ancient handicrafts of the Deccan that is becoming famous in other parts of India is the process of tie and dye weaving used in the striking red and black "Telia Rumals" of Pochampalli in the Nalgonda district where they are still an indispensable part of the present garb. This process is both intricate and subtle and there are only a few places in India where this art still survives.

The sarees, door curtains and other articles produced by the weavers' co-operative society following this method have a good market.

Rumals of Chirala-Perala. The technique followed by the weavers is identical to the weavers of Pochampalli and it is desirable that these should switch on to the production of sarees and other articles.

Kalamkar Industry. The industry of dyeing and printing with the local vegetable colours known as Kalamkari work is being carried on at Masulipatam from times immemorial. The printed cotton fabrics are of three types, viz., (1) Block prints, (2) Block printed and hand painted, (3) Hand painted only. In the past there were about 200 families engaged in this industry.

The Himroo Industry

Himroo is a fabric of intricate weave. The basic cotton material is interwoven with alluring art silk designs in many shades, loud and subdued. It is an ideal fabric for ladies' evening coats and blouses, as well as for curtains and tapestries. The subdued shades are suitable for achkans.

Himroo is a rich, multicoloured and designed cloth, ornamented on the principle of extra weft-fingering. The arrangements of design, flow of lines and curves, distribution of colour and its elaborate manipulation of threads have indeed an artistic appeal ; the texture is rather dense having agreeable weights of three to five ounces per square yard. Fabrics with 280 ends per inch are a common feature.

The industry began to languish speedily due to the introduction of fancy machine-made fabrics, change of fashion, lack of patronage, with the result that at present only a few looms are working. In regard to accuracy of designs, etc., the Himroo fabrics have been improved with the technical assistance rendered by the Industries and Commerce Department. The dyes used for yarn are absolutely fast and only fast dyed yarn is made available to the weavers by the Department.

Crochet Lace Industry

Lace industry is carried on extensively in Narsapur and Palakole and in about 60 villages of Narsapur Taluka. The raw material and implements required for this industry are only hooks and cotton thread.

Diamond thread is used extensively for superior lace making. About 5,000 persons are now engaged in this lace goods manufacture. The kinds of lace prepared are doileys, tea cloth borders, oval table centres, lace edgings, etc. The crochet work was conducted in an organised manner and several firms and merchants were engaged in this industry prior to the Second World War. There has been a steady decline in the export market during the last few years.

The Carpet Industry

The carpets of Warangal are really the pride of the Deccan. As early as in 1857 in the British Empire Exhibition held in London the finest rugs exhibited were from Warangal, particularly known as "Deccan Rugs." They are woven from silk, cotton, or woollen yarn. In the woollen rugs and pile carpets called "Galache", the piles of coloured wool are knitted into each warp thread. The designs of these carpets can be traced to Persian origin, but have a strong local setting. The colour schemes of the designs are blended with wool available locally.

Pile Carpets of Eluru. Eluru, headquarters of West Godavari district, has been famous for woollen pile carpet weaving industry where it is carried on a large scale since the middle of the 15th century. Wool, the chief raw material is of local origin and is obtained from the Kuruma or shepherds whose flocks of sheep graze in the upland talukas of the district. About 82,000 lbs. of wool are available locally. It is also collected from the neighbouring districts of the Telangana region.

Of late the quality of these carpets has shown deterioration chiefly due to want of good quality wool in adequate quantities. To remedy this important drawback the Department of Industries and Commerce drew up a scheme with a view to supplying the artisans with processed and dyed wool. There is also a scheme for centralised production.

GLOSSARY

Abra. Quilt.
Amli. Embroidered shawl of Kashmir.
Attardan. Vessel for keeping *attars* or oily flower extracts used as perfumes.
Bagh. Traditional embroidery of the Punjab.
Bandhana, Bandhani. Tie-and-dye process.
Bharat kam. Embroidery.
Bidri work. Damascening in silver in a dark metal alloy of zinc and copper.
Chaddar. A kind of shawl, about 3 yards by 1½ yard in size, used mostly in the north of the country.
Chandan. Sandal-wood.
Charpai, Charpoy. Low Indian cot.
Chhatak. Indian measure of weight. 16 chattaks make 1 seer, which see.
Charkha. Spinning wheel.
Chauri. Fly whisk.
Choli. A short, well-fitting "blouse" worn under the sari or with a skirt.
Chunari. See "Bandhani."
Cire Perdue. The "Lost Wax" process of metal casting.
Dari. Rug of cotton or other material, but not wool, and generally with a striped design.
Deepa, Deepam. Votive lamps.
Dhoti, Dhotar. A piece of cloth with a narrow coloured border worn by men round the legs in certain parts of the country.
Dhupdani. Censer for burning incence.
Dupatta. North Indian shawl or head-cover.
Fard. A large shoulder wrap.
Gabba. Patchwork and often embroidered rug of Kashmir.
Galicha. Woollen pile carpet.
Ghanta. Bell.
Gopuram. Sculptured monumental gateway of temples in the south.
Gulabdani. Vessel used for sprinkling rose water at religious ceremonies.
Handa. Vessel for storing water.
Himroo or *Himru.* A brocaded cloth made up of cotton threads mixed with silk.
Hooka. Smoking pipe, smoke being driven through water in a bowl before reaching the mouth-piece.
Hukka. See "Hooka."
Jamaivar. Brocaded woollen fabric.
Jamdani. Figured muslin.
Kamangari work. Painted furniture.
Kantha. Traditional quilted and embroidered wrap of Bengal.
Kasuti. Traditional embroidery of the Karnatak.
Khaddar. Hand-spun and hand-woven cloth.
Koftgari work. Damascene work.
Lota. Metal water-vessel, an ewer.
Makhmal. Velvet.
Malmal. Muslin.
Manabhat-kari. The craft of inlaying precious stones in marble.
Martban. Glazed pottery jar for preserves or sweetmeats.
Mashru. Mixed cotton and silk textiles.
Minakari work. Enamelled work on precious metals.
Namda. Compressed felt rug.
Pagri. Turban.
Palamposh, *Palangposh* } Bed cover.
Pandan. Case for pan leaf, betel-nut, etc.
Patola. A special type of warp and weft tie-dyeing in which the threads are tie-dyed before weaving.
Phulkari. Traditional embroidery of the Punjab.
Pikdan, Pikdani. Spittoon.
Pinjra work. Lattice work.
Piyala. Metal cup.
Rath. Temple chariot used for carrying figures of gods in procession.
Reshmi bharat kam. Literally, silk embroidery.
Rumal. Literally, a handkerchief, but in India generally a small shawl or wrap.
Sadeli work. Marquetry.
Sankha. Shell bracelet.
Sari. A long piece of cloth, 6 to 7 yards in length, worn by women draped round the body, in many parts of India.
Satranji. Rug of cotton or other materials, but not wool ; term often applied to mats. Generally with striped designs.
Saurata. Betel-nut cutter.
Seer. Indian weight, roughly equivalent to 2⅛ lbs.
Shisham. Blackwood.
Sozni. Embroidered bed cover of Peshawar and the Punjab.
Sukhad. Sandal-wood.
Sunar. Goldsmith.
Surahi. Long-necked water-vessel.
Tapali. Cooking pan.
Tarkashi work. Wire-inlay work.

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